

EVROPSKA PRAVNA FAKULTETA V NOVI GORICI

Erazem Bohinc

**INTERNATIONAL SPACE LAW:
LEGAL ASPECTS OF EXPLOITING OUTER SPACE**

DIPLOMSKO DELO

Nova Gorica 2013

EVROPSKA PRAVNA FAKULTETA V NOVI GORICI

**INTERNATIONAL SPACE LAW:
LEGAL ASPECTS OF EXPLOITING OUTER SPACE**

DIPLOMSKO DELO

Kandidat: Erazem Bohinc
Vpisna št.: 930 900 32
Štud. program: Triletni dodiplomski program Pravo 1. stopnje

Mentor: doc. dr. Jernej Letnar Černič

Nova Gorica 2013

Zahvala

Zahvaljujem se mentorju doc. dr. Jerneju Letnarju Černiču, za podporo in nasvete pri pripravi diplomskega dela.

Acknowledgment

I would like to thank to my mentor, doc. dr. Jernej Letnar Černič, for his support and guidance throughout the realisation of the diploma work.

“Travelling into outer space should no longer be viewed as something impossible for humans but presents a problem that really can be solved by technical work. The overwhelming greatness of the goal should make all the roadblocks still standing in its way appear insignificant.”

The Problem of Space Travel: The Rocket Motor (1928), p. 140
Herman Potočnik (pseudonym: Hermann Noordung)

IZJAVA

S podpisom zagotavljam, da:

- je predloženo zaključno delo izključno rezultat mojega lastnega raziskovalnega dela;
- je delo popravljeno v skladu s pripombami mentorja in članov komisije;
- sem poskrbel/-a, da so dela in mnenja drugih avtorjev, ki jih uporabljam v predloženem delu, navedena oz. citirana v skladu s fakultetnimi navodili;
- se zavedam, da je plagiatorstvo – predstavljanje tujih del, bodisi v obliki citata bodisi v obliki dobesednega parafraziranja bodisi v grafični obliku, s katerim so tuje misli oz. ideje predstavljene kot moje lastne – kaznivo po zakonu (Zakon o avtorski in sorodnih pravicah (ZASP) - Uradni list RS, št. 21/1995, 9/2001, 30/2001 - ZCUKPIL, 43/2004, 17/2006, 114/2006 - ZUE, 139/2006, 68/2008);
- je elektronska oblika identična s tiskano obliko predloženega dela ter soglašam z objavo dela na fakultetnih straneh;
- da je delo lektoriral/-a_____.

Lahovče, 20.6.2013

Erazem Bohinc

POVZETEK:

Cilj te diplomske naloge je s holističnim pristopom proučiti področje mednarodnega vesoljskega prava. Osrednja tema naloge sta dve hipotezi oz. vprašanja. Prvo vprašanje se posveča tematiki trenutne zakonodaje (*de lege lata*) z namenom vrednostne ocene njene primernosti z vidika velikega števila znanstvenih odkritij in hitrega tehnološkega napredka. Drugo vprašanje pa se nanaša na raziskavo priložnosti za udejstvovanje v aktivnostih v vesolju za manjše države, ki same sicer nimajo dovolj sredstev, ki bi jim omogočile »osvajanje vesolja«.

Drugo poglavje služi uvodu v področje mednarodnega vesoljskega prava in predstavi zgodovino razvoja. Poleg tega, vsebuje tudi eno najosnovnejših vprašanj, ki se nanašajo na problem razmejitve nadzračnega prostora in vesolja. Tretje poglavje predstavi najpomembnejše organizacije, ki imajo ključno vlogo pri nadzorovanju in uravnavanju aktivnosti v vesolju. Četrto poglavje služi predstavitevi trenutno veljavne zakonodaje na področju mednarodnega vesoljskega prava – *de lege lata*. To poglavje je z vidika bralca še posebej pomembno, saj služi kot uvod v zadnje, peto poglavje diplomske naloge. Peto poglavje se med drugim nanaša na morebitno bodočo ureditev statusa vesolja in aktivnosti, ki tam potekajo. Prav tako predstavi nekaj pomembnih vprašanj in groženj, ki bodo morala biti v prihodnosti naslovljena ter razrešena.

Ključne besede:

mednarodno pravo, vesolje, miroljubni nameni, izkoriščanje, prosti trg, Corpus Iuris Spatialis Internationalis, Organizacija Združenih Narodo, Evropska Vesoljska Agencija

ABSTRACT:

The main objective of this diploma work was to examine the field of international space law, based on a holistic approach. My research was based on two hypotheses. Firstly, it elaborates the current legal regime and the current laws that regulate the field of outer space affairs – *de lege lata*. The question therefore was whether the latter is obsolete and inappropriate when considering the scientific discoveries and rapid technical developments we witness daily. Secondly, the possibilities of smaller countries becoming involved in space exploration were assessed, i.e. countries that are less prominent in attaining outer space ambitions e.g. Slovenia.

In this regard, the second chapter serves to introduce the historical development of international space law and its foundation. Furthermore, it contains one of the more fundamental questions regarding the delimitation of airspace and outer space. The third chapter introduces the more important organisations responsible for regulating outer space activities. The fourth chapter presents the current legislation – *de lege lata*. This chapter prepares the reader for fully comprehending the fifth chapter that *inter alia* contains speculations and proposals about any future regulation of outer space, and also outlines the threats that need to be taken into consideration.

Key words:

international law, outer space, peaceful purposes, exploitation, free market economy, Corpus Iuris Spatialis Internationalis, United Nations Organisation, European Space Agency

TABLE OF CONTENTS

1. INTRODUCTION	1
2. DEVELOPMENT OF INTERNATIONAL SPACE LAW	5
2.1 OUTER SPACE AND SPACE SCIENCE AS A SUBJECT OF INTERNATIONAL LAW	5
2.2 SUMMARY OF RESEARCH INTO THE FIELD OF INTERNATIONAL SPACE LAW	7
3. UNIVERSAL, REGIONAL AND NATIONAL ORGANISATIONS GOVERNING SPACE ACTIVITIES	14
3.1 THE UNITED NATIONS AND INTERNATIONAL SPACE LAW	15
3.1.1. United Nations Office for Outer Space Affairs (UNOOSA)	16
3.1.2. The United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)	17
3.2 EUROPEAN SPACE AGENCY (ESA)	18
3.3 ROLE OF UN AND ESA FOR SMALLER EUROPEAN COUNTRIES.....	19
4. LEGISLATION (SOURCES OF SPACE LAW) REGULATING THE EXPLOITATION OF OUTER SPACE	22
4.1 PARTIAL TEST BAN TREATY OF 1963.....	26
4.2 OUTER SPACE TREATY (THE OST) OF 1967.....	27
4.3 RESCUE AGREEMENT OF 1968	28
4.4 LIABILITY CONVENTION OF 1972.....	29
4.5 REGISTRATION CONVENTION OF 1975	30
4.6 MOON AGREEMENT OF 1979	30
5. FUTURE REGIME IN OUTER SPACE	32
5.1 INTERNATIONAL SPACE LAW <i>DE LEGE FEREDA</i>	32
5.2 OUTER SPACE AND FREE MARKET ECONOMY	34
5.3 EXPLOITATION OF OUTER SPACE FOR MILITARY PURPOSES	37
6. CONCLUSION.....	40
7. REFERENCES	42
7.1 MONOGRAPHIES	42
7.2 ARTICLES	42
7.3 CONFERENCE REPORTS	43
7.4 TREATIES AND DOCUMENTS	43
7.5 INTERNATIONAL TREATIES CONCERNING REPUBLIC OF SLOVENIA...	45
7.6 CASE LAW	45
7.7 INTERNET AND WEB- BASED RESOURCES.....	45

7.8 OTHER.....	46
8. APPENDICES	48

1. INTRODUCTION

The inspiration and reasoning behind my decision to write my diploma work about international space law was the fact that this branch of international law is mostly unknown in Slovenia (as well as in other smaller countries), and any general awareness of the importance of outer space for our everyday lives and future is on a relatively low level. Therefore, most people are unaware that nowadays many indispensable utilities, i.e. telecommunication, communication, navigation, and other technologies, are directly dependent and linked to outer space. Space affects *erga omnes* (i.e. *us all*). Due to the vast reaches of outer space, which is also used for military purposes, it is of utmost important to impose an appropriate legal regime that ensures the rule of law and prevents monopolisation and national appropriation of outer space. Exploration and usage of outer space needs to be regulated and should protect the interests and benefit of all countries, thus preventing those few chosen countries possessing both the technology and immense influence, from occupying and imposing the *divide et impera* principle.

In April 2012 I took part in an International Air and Space Law Association (hereafter IASLA) moot court competition held in Cambridge, United Kingdom. What intrigued me the most was the fascination about how far-reaching the idea of exploiting outer space for military and commercial purposes is, and what lies in store for the development of human civilisation. The moot court was based on a future case (moot problem) concerning several different legal fields (see appendix nr.1, *infra*), that pointed out the fact that international space law is similar to labour law or family law, where many other laws and its principles can apply by reference to the material that they deal with. Thus, international space law is not an autonomous legal concept. Many other laws are applicable to outer space affairs, such as contract law or criminal law etc. International space law in particular is law designated to deal with outer space affairs. It applies principles of existing domestic or international law to a new field of activity.¹ Although, international space law is modern law, the course of events and especially scientific discoveries and technological advancement have brought us to the point where we have to assess whether current legislation is still appropriate or whether it needs to be modified and readapted.

The introductory section is intended to provide an insight into the diploma work. Firstly, a problem description of the thesis is presented and then followed by the purpose and hypothesis. Furthermore, I will also present descriptions of the methodology and structure of the diploma work.

Problem description

Outer space is one of the more modern fields of regulation by international law that started to develop in the mid-20th century, but we can trace its origins much further back. *In primis*, international space law was dominated by certain states and a few international organisations. Therefore, the result was five United Nations (hereafter UN) space treaties on outer space constitute *Corpus iuris spatialis internationalis*², based exclusively on public character. The first explorations were intended to specifically

¹ Lyall F., Larsen B. P., Space law: a Treatise, 2009, p. 2.

² The Outer Space Treaty (1967), The Rescue Agreement (1968), The Liability Convention (1972), The Registration Convention (1975) and The Moon Treaty (1979), see *infra* Chapter 4.

serve military purposes and thus there is still the fear regarding the possible militarisation and weaponization of outer space. However, the development of space science and space technology could soon enable business entities to gain entry into outer space and therefore this could lead to its commercialisation. At this moment, we may be on the doorstep of one of the more far-reaching and exciting moments in the history of human civilisation that may introduce us to the beginning of a new phase of economic development or even bring us to a whole new age of human civilisation. The problem appears to be in the legislation, *de lege lata*, which was never set up to cope with the modern issues of outer space in the 21st century, and is becoming more and more obsolete. On the other hand, we should also take into consideration that “even in space, the ultimate enemy is man!”³

However, at this point in time it seems inevitable as former astronaut Alan Bean expressed:

“I would have to say that humankind is going out into space whether any individual or country likes it or not. If we glance back through history, we find that humans have always seemed to go any place they can once they’re able to.”⁴

Purpose and hypothesis

The purpose of this thesis was to examine the field of international space law based on a holistic approach through the study of literature, legal, and internet resources and to focus especially on the legal aspects of exploiting outer space and assess the possibilities of smaller countries becoming involved in space exploration.

My first hypothesis is that the legal regime of *de lege lata* regarding outer space is now obsolete and inappropriate, especially in the light of the growing number of scientific discoveries and rapid technical development over the last few decades.

This seems to be a direct consequence of the growing tendency towards more extensive exploitation of outer space. In addition, I have explored whether is it possible to exploit outer space, and how important has been and will be the role of the UN in the future regarding this aspect, when considering the fact that international space law started to develop under the auspices of this international organisation.

Nowadays, not only countries but also business entities share at least the same interest in outer space. Firstly, outer space exploration has been of utmost importance for certain countries to assert their military, technological, and economic dominance, as matters of prestige. However, new opportunities have now arisen from this promising field of science that used to be part of an unimaginable dimension for human awareness only a few decades or even years ago.

Inter alia, outer space remains crucial for its strategic and military importance. We have to keep in mind that space-based weaponry and possible militarisation have been on the agendas of many conferences concerning Outer space, e.g. conferences organised

³ Outland, movie, 1981. The plot of this movie is life in the distant future, about a police marshal on the Jupiter at a remote mining colony named Io.

⁴ Livingston M. D., The ethnical commercialisation of Outer Space, p. 2 qtd. Statement by Astronaut Alan Bean, 26 July 1988 in an interview for The Overview Effect: Space Exploration and Human Evolution, 2nd edition, 1998, by Frank White, p. 197.

by the UN Institute for Disarmament Research (hereafter UNIDIR). Their main topics were outer space in regard to military usages.⁵

The reason the term “*exploit*” is used and not “*commercialise*” is the clear differences in meanings these two words have. According to the Merriam-Webster⁶ and Cambridge dictionaries⁷, the verb “(to) *exploit*” has two meanings. On the one hand, it means “to use something well” in the sense of making “productive use of something” or “to use something for advantage”; e.g. the need to ensure that we exploit our resources as fully as possible. On the other hand, it is also used to express something such as “to make use of meanly or unfairly for one's own advantage”; e.g. Exploiting immigrant mining workers.

The term “(to) *commercialise*” (verb) according to the Merriam-Webster⁸ and Cambridge dictionary⁹ means “the process of making a product or service available for sale to the public” or “to develop or organise something in order to make as much money as possible”, and lastly “to exploit for profit”.

Therefore the term “(to) *exploit*” is a hypernym when compared to the verb “(to) *commercialise*”, which has a more specific meaning. Since this thesis also covers the topic of militarisation and other activities when it comes to the usage of outer space, it was necessary to name the thesis accordingly – i.e. to use the term *exploitation* of outer space and not *commercialisation*. On top of that, this would also have narrowed the whole aspect and purpose of this thesis, i.e. to encompass a broader image of future regulation concerning affairs in outer space.

The second hypothesis or question explored whether the opportunities for smaller (i.e. less prominent attainment in outer space) countries, e.g. Slovenia, to become involved in the exploration and commercialisation of outer space, are comparable with traditional “space-faring” nations.

The UN space treaties are oriented towards duly reflecting the balance of interests by all countries. International space law is one of the fields of international law, mostly unknown in Slovenia. However, this might change as in May 2008 Slovenia signed the an agreement with the European Space Agency (hereafter ESA) concerning space cooperation for peaceful purposes¹⁰ and thus took a big leap towards attaining full membership. Furthermore, I have researched a possible analogy to be drawn between the colonisation period (15th until early 20th century) and then compared it to the possible future neo-colonialism of outer space. *Historia magistra vitae est* – “history is life's teacher, the study of the past should serve as a lesson for the future”. *Inter alia*, mankind should take into consideration its historical downfalls to prevent the same mistakes happening again.

⁵ Security in space: the next generation, UNIDIR Conference report, 2008, p. iv.

⁶ Merriam-Webster dictionary, <http://www.merriam-webster.com/dictionary/exploit>. (last visited 14.6.2013).

⁷ Cambridge Dictionaries Online, http://dictionary.cambridge.org/dictionary/british/exploit_1. (last visited 14.6.2013).

⁸ Merriam-Webster dictionary, <http://www.merriam-webster.com/dictionary/commercialize>. (last visited 14.6.2013).

⁹ Cambridge Dictionaries Online, <http://dictionary.cambridge.org/dictionary/business-english/commercialize?q=commercialise>. (last visited 14.6.2013).

¹⁰ Agreement between the Republic of Slovenia and the European Space Agency concerning space cooperation for peaceful purposes, Official Gazette No. 9/2009.

Methodology and structure

The methodology of this diploma work was based on a holistic approach and thorough examination of both the previously described goals of this thesis. The study, examination, and review (summary) were based on various literature, legal, and internet resources. In order to find and assess the legislation, definitions, concepts, and other phenomena concerning outer space I referred to diverse literature from different authors and also tried to compare different concepts throughout history where possible. In order to prepare this thesis as carefully and thoroughly as possible, I also took into consideration more or less all those relevant academic papers (diploma, magister and doctoral) written in Slovene about international space law, as available at that time¹¹.

The structural framework consists of 5 main chapters, whereas the design of the structure follows the content.

¹¹ E.g. Košenina U., Novosti v mednarodnopravni ureditvi nadzračnega prostora, 2005; Keršič L., Druga generacija vesoljskega prava, 2011.

2. DEVELOPMENT OF INTERNATIONAL SPACE LAW

This chapter should serve as a primer to international space law and provide a valuable insight into the first endeavours to the exploration and usage of Outer space. Furthermore, it examines the course of events which influenced the evolution of the modern age of international space law.

It is crucial to present international space law as a result of the hard realities of scientific and technological achievements throughout the history of mankind. Substantive processes and directions for regulating outer space affairs have mostly concentrated on understanding the nature and progress of science and technology before political and legal preferences needed to be introduced.¹²

2.1 OUTER SPACE AND SPACE SCIENCE AS A SUBJECT OF INTERNATIONAL LAW

The urge to explore *outer space* has always been a part of human consciousness, as evident from the myths and legends of numerous cultures that described journeys to celestial bodies and the impacts of outer space objects on everyday life. It is fascinating that most of the planets¹³ were given names during the periods of emerging Greek and Roman mythologies¹⁴. This was mostly due people using the planets for navigation (i.e. *celestial navigation*). People nowadays still use outer space for navigation but in a much different way. Now, we use Global navigation satellite systems (hereafter GNSS), which are indispensable for providing accuracies regarding times and locations.

International space law evolved in parallel with the development of space technology and, as a result, remained insignificant until the start of the *Space Race*. Therefore, it consisted mainly of just suggestions, discussions, speculations, and the human imagination that had driven a passion for exploring the unknown.

Firstly, it is necessary to stress the importance of space science, which is still the “driving force” of everything connected with international space law. Without scientific discoveries there would be no need to regulate space affairs by law.

¹² Christol Q. C., *The modern int. law of outer space*, 1982, p.13.

¹³ from Ancient Greek (*astēr planētēs*), meaning "wandering star".

¹⁴ e.g. **“Mercury** is the god of commerce, travel and thievery in Roman mythology. The planet probably received this name because it moves so quickly across the sky. **Venus** is the Roman goddess of love and beauty. The planet is aptly named since it makes a beautiful sight in the sky, with only the Sun and the Moon being brighter. **Earth** is the only planet whose English name does not derive from Greek/Roman mythology. The name derives from Old English and Germanic. There are, of course, many other names for our planet in other languages. **Mars** is the Roman god of War. The planet probably got this name due to its red color. **Jupiter** was the King of the Gods in Roman mythology, making the name a good choice for what is by far the largest planet in our solar system. **Saturn** is the Roman god of agriculture. **Uranus** is the ancient Greek deity of the Heavens, the earliest supreme god. **Neptune**, was the Roman god of the Sea. Given the beautiful blue color of this planet, the name is an excellent choice! **Pluto** is the Roman god of the underworld in Roman mythology. Perhaps the planet received this name because it's so far from the Sun that it is in perpetual darkness.” (StarChild Question of the Month for August 2002, <http://starchild.gsfc.nasa.gov/docs/StarChild/questions/question48.html>, last visited 14.6.2013).

It took over 18 centuries to prove Aristarchus (310 BC - 230) theory of a heliocentric model according to which Earth rotated around the Sun, as is the case in reality. That was done in the 16th century by Nicolaus Copernicus (19th February 1473 – 24th May 1543) who actually proved this theory in his manuscript entitled *Little Commentary* (lat. *Commentariolus*).¹⁵ Firstly, he proved that the Earth isn't the centre of the Universe and the basic physical relationship between the Earth and its Moon. He argued that the Sun was the centre of Universe (which is incorrect, it is in the centre of the Solar System) and that the Earth was in constant motion. Nevertheless he established a foundation for his descendants to build upon and since that time people have begun to comprehend the reality of their place within the cosmic perspective.¹⁶ Later scientific discoveries during the 17th century, such as Johann Kepler's work on mathematical laws governing the motion of bodies in orbit¹⁷ or Isaac Newton's research on gravity¹⁸ laid down the cornerstone for travelling to outer space, and their works continue to impact on space science, even today.¹⁹

The biggest leap forward was accomplished during the 20th century with technological developments in rocket and missile technology primarily intended for military use.²⁰ The Space Race traces its origins to Nazi Germany at beginning in the 1930s and continued during the 2nd World War when Germany researched and built operational ballistic missiles (also "the V-2 rocket", German: *Vergeltungswaffe 2*, English: *retaliation weapon 2*, technical name: *Aggregat-4 (A4)*). Expanding the work during that time with leading scientists such as Hermann Oberth and Walter Homann, Germany became the leading country in Rocket science at the time of the 2nd World War. Vigorous government support led to the development of the V-2 rocket. Although the V-2 programme was expensive and the rocket had limited military value, it is acknowledged as being the first viable space rocket.²¹ Consequently, this proves that the exploration of Outer Space has been mostly subjected to military uses as performed by countries.

With the advancement of rocket science, questions about the legal regulation of aviation appeared on the world's agenda. The swift development of international aviation attracted the attentions of lawyers and academics, as well as of government officials and military commanders. In 1910 Emile Laude noted that there special laws were needed for outer space as a region. In 1926 V. A. Zarzar of the Soviet Air Ministry indicated his view that there was an upper limit to a state's sovereignty over its air-space, and that a separate legal regime would be required to deal with the arena beyond this 'upper zone'. It is fascinating that already in 1928 Herman Potočnik (pseudonym Hermann Noordung December 22nd, 1892 – August 27th, 1929) the rocket engineer and pioneer of cosmonautics (astronautics) of Slovenian ethnicity published his book '*The problem of space travel: The rocket motor*', in which he presented a plan for a breakthrough into space and the possible establishment of permanent human presence, i.e. long-term human habitation of space, by building a space station that would be positioned in the geostationary orbit. His speculation foresaw the possibility of

¹⁵ Spacechronology.com, <http://spacechronology.com/pre-20thcen.html#1513> (last visited 14.6.2013).

¹⁶ *Ibid.*

¹⁷ Astronomia nova - New Astronomy 1609 Harmonices Mundi – eng. The Harmony of the World, 1619.

¹⁸ Philosophiæ Naturalis Principia Mathematica- eng. Mathematical Principles of Natural Philosophy, 1687.

¹⁹ Wolff M. J., 'Peaceful uses' of outer space has permitted its militarization—does it also mean its weaponization?, 2003, p. 4.

²⁰ *Ibid.* 1, p. 7.

²¹ *Ibid.* 19.

using space stations for possible Earth observations.²² His work is especially acknowledged from a technical point of view although he did not address the legal issues of space in regard to international law.²³

2.2 SUMMARY OF RESEARCH INTO THE FIELD OF INTERNATIONAL SPACE LAW

In 1932 Vladimir Mandl of Pilsen in his book '*The law of outer space: The problem of a space flight*' argued that space law is different from the law of the sea and the law of the air, although he suggested using some of their concepts and principles as analogies. He believed this could help to solve some of the issues that would arise when it came to the law of outer space (i.e. international space law). In the chapter of his book entitled '*The future*', he expressed the view that state sovereignty should be restricted in its vertical dimension, and that in the area above and beyond state sovereignty there should be freedom. He also suggested (1.) that the law of the air was unsuitable for dealing with spacecraft, (2.) that astronauts should be liable for the damage they caused, being subject only to mitigation for contributory negligence²⁴, (3.) astronauts should be liable for any damage they cause, and that spacecraft launched under the sovereignty of a state should, when in space, remain subject to the sovereignty of that state, (4.) that the commander of a spacecraft should have authority over its crew and that (5.) the link between an individual and the territorial state of his nationality might change as new communities beyond the Earth developed.²⁵

His ideas are still widely accepted today and were highly important for the development of international space law and of the common principles that affect space, as will be explained later.

²² "In 188 pages of his book Potočnik discussed a plan for a breakthrough into space and the establishment of a permanent human presence there. He conceived a space station in detail and was the first man to calculate the geostationary orbit, on which the station would orbit the Earth. He described the use of orbiting spacecraft for detailed observation of the ground for peaceful and military purposes, and described how the special conditions of space could be useful for scientific experiments. Potočnik also expressed strong doubts of the potentially destructive military use of these fresh discoveries. His book was translated into Russian in early 1935, Slovene in 1986 (by the Slovenska matica), English in 1999 (by NASA) and Croatian in 2004 (by Marino Fonović, published by Labin Art Press). With his many ideas he became one of the founders of astronautics. His concepts were first taken seriously only by the amateur rocketry movement in Germany, the Verein für Raumschiffahrt (VfR - "Spaceflight Society"), centered on Hermann Oberth and his co-workers. In its Russian edition, the book may also have influenced Sergey Korolev's circle. More locally, Viennese engineers dismissed his work as fantasy. Potočnik's book described geostationary satellites (first put forward by Konstantin Tsiolkovsky) and discussed communication between them and the ground using radio, but fell short of the idea of using satellites for mass broadcasting and as telecommunications. The wheel-shaped space station served as an inspiration for further development by Wernher von Braun (another former VfR member) in 1952. Von Braun saw orbiting space stations as a stepping stone to travel to other planets." more: <http://noordung.vesolje.net/vsebina/book.htm>. (last visited 14.6.2013).

²³ *Ibid.* 1, p. 5.

²⁴ Contributory negligence in Common-law jurisdictions is defence to a claim based on negligence, an action in tort. It applies to cases where a plaintiff/claimant has, through his own negligence, contributed to the harm he or she suffered. more: Legal dictionary, <http://legal-dictionary.thefreedictionary.com/negligence>. (last visited 14.6.2013).

²⁵ *Ibid.* 1, p. 6.

When the 2nd World War ended, German rocket scientists and advanced German technology was captured by the USSR and the US. They were then transferred to these countries, where they continued their research, which became the bases of their space rocket programmes (although some of these scientists should have been tried for being involved in war crimes²⁶). In the beginning Rocket science was primarily intended for military purposes, i.e. the development of ballistic and intercontinental missiles.²⁷ Soon, however, the US had begun to formulate its political and diplomatic strategy concerning outer space affairs, especially on protecting the legality of satellite intelligence gathering. Combinations of diplomatic and political influences were the *modus operandi* of both parties when considering the circumstances within which outer space affairs were just becoming regulated. In 1957 the USSR launched *Sputnik 1* (Its mission was to obtain information for atmospheric studies), the world's first satellite and proved the future tendency for using space for military purposes and to be the beginning of the Space Race.²⁸ The launch of *Sputnik 1* had many other consequences that are explained later. Primarily, the launch of *Sputnik 1* can best be understood as the birth of international space law, but as expressed before, its origins lay much further back in time.²⁹

The *Space race* (1957 – 1975) was a competition between the USSR and the US for dominance in outer space. It was based on rivalry between the two nations and also two opposing ideologies, focused on attaining first place in space exploration, which was at that time presented as a necessity for national security both countries, but also on top of that a battle for prestige. Rivalry between the above-mentioned countries involved pioneering efforts for launching artificial satellites, sub-orbital and orbital human spaceflight around the Earth, and piloted voyages to the Moon. It concluded with a joint mission by both countries when they launched the Apollo-Soyuz Test Project human spaceflight mission in July 1975. The Apollo-Soyuz Test Project symbolised a partial easing of their strained relations. However, the Space Race remained a symbol of the Cold War era.³⁰

Furthermore *Sputnik 1* also transformed the idea of space exploration into reality. The date when *Sputnik 1* was launched also signified the beginning of space exploration. Only 4 years later, on 12th April 1961, Yuri Gagarin was the first human to see Earth from outer space and mankind become space travellers.³¹ On 20th July 1969 the first men set foot on Moon.³²

In addition, after the 2nd World War ended, more normative aspects of space travel began to be explored and international space law also started to become more and more important in terms of international relations. Space became praised even more by scholars, politicians and diplomats, and they began to take an interest in the issue of regulating outer space affairs by a law - i.e. what should and should not be permitted in outer space.³³

²⁶ Zuroff E., The US record on Nazi war criminals, *The Guardian*, 15 November. 2010.

²⁷ *Ibid.* 1, p. 7.

²⁸ *Ibid.* 19, p. 6.

²⁹ *Ibid.* 1, p. 3.

³⁰ Lee R., *Reconciling International Space Law with the commercial realities of the 21. century*, 2000, p. 195.

³¹ He completed an orbit of the Earth in *Vostok* spacecraft and became an international celebrity. He was also awarded many medals and titles by the USSR, e.g. Hero of the Soviet Union, one of the nation's highest honour.

³² *Ibid.* 19, p. 6.

³³ *Ibid.* 19, p. 6.

What's more, the launch of Sputnik 1 also signified the beginning of a discussion on how to ensure the peaceful usage of outer space. During the International Geophysical year (1957-1958) the US proposed that the UN should work towards "the objective of assuring that future developments in outer space would be devoted exclusively to peaceful and scientific purposes."³⁴ After this General Assembly of the UN adopted Resolution 1148 (XII) of 14th November 1957, which had a disarmament focus and was the first UN Resolution on outer space. This was also the first time the phrase "exclusively for peaceful purposes" was used within an authoritative UN text.³⁵ At that point the UN was faced with a responsible task – to maintain world peace.

The endeavours of mankind in outer space now required the law to respond and consequently create an entirely new branch of international law, which, *inter alia*, also had to be implemented without any further delay when considering the advancing technological progress and growing political tensions between the US and USSR. As mentioned before, this was mostly done with understanding and awareness of the nature and progress of scientific and technological achievements. Within the framework of the newly-created UN, academics, politics and diplomats from all over the globe formulated many principles and concepts, which were later embedded within several international treaties, conventions, agreements, resolutions, and declarations, laying out the foundations for the international space law.³⁶ Since then the role of the UN slightly diminished, but it still remains the most important contributor to international space law and also the most authoritative for evolving it.³⁷

That notwithstanding, international space law is not an autonomous legal concept. There are many other laws applicable to outer space affairs, such as contract law or criminal law, which are within their concepts a coherent single form of law. The reason for this is that the principles of existing domestic or international law can also be used for a completely new field of activity, in particular outer space. Therefore, international space law is similar to Labour law or Family law, and other laws denoted by reference to the material with which they deal rather than being derived from the "pure rational development of a single legal concept".³⁸

There have been quite a few attempts to find an appropriate definition of international space law, but these have been hampered due to the fact that the frontiers between airspace and outer space have still not been properly defined.³⁹ Manfred Lachs, being one of the more prominent academics in the field of international space law after the 2nd World War, described (in 1972) it as:

*"Space law is the law meant to regulate relations between States to determine their rights and duties resulting from all activities directed towards outer space and within it – and to do so in the interest of mankind as a whole to offer protection to life, terrestrial and non-terrestrial, wherever it may exist."*⁴⁰

³⁴ *Ibid.* 12.

³⁵ *Ibid.* 19, p. 6.

³⁶ *Ibid.* 30, p. 194.

³⁷ Jasentuliyana N., International space law and the United nations, 1999, p. 56.

³⁸ *Ibid.* 1, p.2.

³⁹ Diederiks-Verschoor I.H. Ph., An introduction to space law, 1999, p. 5.

⁴⁰ Lachs M., The law of outer space – An experience in contemporary law-making, 1972, p. 33.

It still remains a question as to whether it could also regulate non-terrestrial affairs, but considering the scope of this thesis, this is irrelevant. According to Francis Lyall and Paul B. Larsen:

"At its broadest space law comprises all the law that may govern or apply to outer space and activities in and relating to outer space. Space law is a particulate law, developed to deal with the practical problems of the use and exploration of outer space."⁴¹

Furthermore, Francis Lyall and Paul B. Larsen divide international space law into three main legal aspects – to the *public international* law aspect, *private international* law aspect, and *national* law aspect, which are accompanied by *hybrid* aspects.⁴² When referring to the term “space law”, this means a whole body of law, consisting of both international and domestic space law. International space law refers to rights and obligations at the international level, included within treaties that individual states have signed and ratified, whereas domestic space law refers to national legislation.⁴³ This is more thoroughly presented in Chapter 4 (see *infra* page 19)

One of the first questions stumbled upon when finding the most appropriate definition is where international space law starts to apply, i.e. the question of the delimitation of outer space and air space. This is one of the crucial questions from the aspect of this thesis, when considering the differences in regimes which apply to each international space. This question also outlines the assessment of research conducted to date.

Delimitation of airspace and outer space:

In primis, the international regime of the high seas, Antarctica, and outer space, creates a basic distinction between *national spaces* and *international spaces* in international law. The international regime is regulated by the laws of international spaces, which includes regulation of the following fundamental issues: delimitation, sovereignty, jurisdiction, and force; and basically defines the common legal status of high seas, Antarctica, and the cosmic spaces.⁴⁴

The aerospace boundary (also *delimitation line*, *demarcation line*) between airspace and outer space constitutes the delimitation of national airspace and outer space and the delimitation of international airspace and outer space. Moreover, it is a boundary on the one hand between national lands, waters, and airspace (which altogether constitute a national territory), and also on the second hand the high seas, the Polar Regions, and outer space.⁴⁵

However, delimitation of airspace and outer space does not necessarily also imply the determination of frontiers between air law and space law. For instance, the Space Shuttle is a space-faring cargo ship that corresponds to the generally accepted definition of a spacecraft – i.e. rocket-propelled vehicle able to move within the orbit of Earth or outer space. However, these characteristics encumber any jurisdiction over the Space Shuttle. Question (still unanswered) arising from whether this is air law or space law. The Space Shuttle has the capacity to re-enter the atmosphere and land

⁴¹ *Ibid.* 1, p. 2-3.

⁴² *Ibid.* 1, p. 31.

⁴³ Gibson M. J., Powell J., AU Space Primer, 2009, p. 43.

⁴⁴ Kish J., The law of international spaces, 1973, p. 4 and 42.

⁴⁵ *Ibid.*

like an aircraft. It fulfils the requirements of the definition of an “aircraft” according to the Chicago Convention of 1944 on International Civil Aviation.⁴⁶ Furthermore, this poses a question as to which legal regime governs the operation of a Space Shuttle and whether it is considered to be an aircraft at some point or not.⁴⁷ The first aerospace supersonic aircraft developed was Concorde (introduced 21st January 1976, retired 26th November 2003), which still remains the only aircraft able to reach 6 000 km in 3 hours. It was used for the transportation of passengers and represented the first stage of accelerated air transport. In the future Concorde’s successor would need to be able to cover the distance between Los Angeles and Tokyo (app. 10 000km) carrying around 300 passengers. Economic and technical development has led to the proliferation of also exploiting outer space for possible public transportation which would have to be regulated *de lege fereda*.⁴⁸ In the presented case, the defined delimitation line could be one of the key contributions to resolving this issue.⁴⁹

We have to keep in mind that when it comes to determining the boundaries of international space law there are two frontiers involved – the *outward* and *inward*.⁵⁰ We may conclude that the outward frontier is determined only by the laws of physics, but a completely different situation arises with inward frontiers, thus posing a much bigger issue.

The inward frontier is limited by the regimes of national sovereignty, but so are international spaces also. National territory constitutes the basis of territorial sovereignty over national spaces and extends to both: the horizontal directions, i.e. country and state boundaries, as well as vertical directions, and the entire airspace of a national land territory up to the limit of its national airspace.⁵¹ Therefore, territorial sovereignty and the international regime are subjected to delimitation and the conflicts of interest between national spaces and international spaces.

Conflicts of interest result in tendencies to extend national land territories over international spaces and *vice versa*, the interests of international regimes tend to extend the limits (boundaries) of international spaces over national territories. Consequently, these conflicting interests necessitate the importance of international regulation regarding the delimitation of national spaces and international spaces, which pose a potential threat of international conflicts.⁵²

The delimitation of airspace and outer space has been an everlasting and controversial problem of international law.⁵³ It still remains one of the major obstacles preventing the proper defining of outer space.⁵⁴ The Paris Convention on Aerial Navigation in 1919 indicated the extent of national airspace. Article 1, *inter alia*, stipulates that the national airspace (and therefore national sovereignty) extends above the national areas (land territory and territorial waters) of the subjacent country. This was later confirmed by national legislation (e.g. Soviet Air Law Code of 1935 and United States Civil Aviation Act of 1938), consolidated by the Chicago Convention of 1944 on International Civil

⁴⁶ The Convention on International Civil Aviation, Chicago, entered into force on 5 March 1947.

⁴⁷ Ruwantissa I. R. A., *Frontiers of aerospace law*, 2002, p.21.

⁴⁸ *Ibid.* p.26.

⁴⁹ *Ibid.* 39, p. 18.

⁵⁰ *Ibid.* 44, p. 39.

⁵¹ *Ibid.* 44, p. 5.

⁵² *Ibid.* 44, p. 6.

⁵³ *Ibid.* 47, p.21.

⁵⁴ *Ibid.* 39, p.5.

Aviation⁵⁵ and once more reaffirmed by the Geneva Convention of 1958 on the Territorial Sea and the Contiguous Zone^{56 57}.

Consequently, as mentioned previously delimitation is of utmost importance especially in terms of the differences in regimes that apply to each international space. The '*Res extra commercium*' regime is used for territories such as the high seas that cannot form the territories of States, '*res nullius*' regime applies to those territories that are capable of being acquired by States in the future, and the '*res communius humanitatis*' regime or the common heritage of mankind. The difference between '*res communis humanitatis*' and '*res extra commercium*' is that the first forbids countries to acquire sovereignty over territories whereas the second relates to collective ownership on behalf of mankind.⁵⁸

Delimitation of airspace and outer space is also essential due to the conflicting strategic interests between territorial sovereignty and current international regimes in outer space. Furthermore, the regimes of national and international spaces completely differ from one another. Thus, subjacent countries demand a maximum height of airspace in favour of national security.⁵⁹

An analogy is drawn between the freedom of aviation in international airspace above the high seas and Antarctica in Article 2 (4) of the Convention on the High Seas⁶⁰, Article 7 (4) of the Antarctic Treaty⁶¹, and Article 1 of the Outer Space Treaty (hereafter OST)⁶², in that OST recognises the freedom of exploration in outer space. Furthermore, this also proves international space law has evolved by taking into consideration other regimes of International spaces *mutatis mutandis*.⁶³ In contrast, Article 4 of OST prohibits the presence of nuclear weapons in outer space, but this does not apply to the airspace of the high seas. Article 1 (1) of the Antarctic Treaty poses a general prohibition of military activities in the airspace of Antarctica, but this does not apply to outer space. Different military regimes of international airspace and outer space, *inter alia*, reaffirm the necessity of accurately delimiting air space and outer space.⁶⁴ Finally, this means there still remains *lacuna lege* that will have to be regulated by an appropriate legal regime.

De lege lata does not regulate the issue of delimiting airspace and outer space. However, there have been several initiatives, such as one initiated by the General Assembly Resolution No.2222 (XXI) of 19th December 1966, which requested the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) to begin a study of the definition of outer space. This request was emphasised by General Assembly Resolution No. 2733 (XXV) of 16th December 1970.⁶⁵ General Assembly Resolution No.2222 (XXI) also involves delimitation of the two components of the cosmic spaces – outer space and celestial bodies, but this still remains an open question. Until this day

⁵⁵ *Ibid.* 46.

⁵⁶ Convention on the Territorial Sea and the Contiguous Zone, entered into force 1964.

⁵⁷ *Ibid.* 47, p.21.

⁵⁸ *Ibid.* 30, p. 207.

⁵⁹ *Ibid.* 44, p. 42.

⁶⁰ Convention on the high seas, entered into force on 30 September 1962.

⁶¹ The Antarctic treaty, entered into force in 1961.

⁶² see *infra* Subchapter 4.2.

⁶³ *Ibid.* 44, p. 42.

⁶⁴ *Ibid.* 44, p. 42.

⁶⁵ *Ibid.* 44, p. 43.

this issue has occupied the minds of governments, the UN, and different world scientific and legal communities.⁶⁶

There have been several theories when attempting to find a solution to this issue. The most appropriate choice will have to be made soon, due to the fact that international space law is developing mostly in response to scientific discoveries and technological achievements, and the proliferation of those involved in outer space activities. Although, there have not been any direct conflicts relating to this issue, this does not mean that this would not happen in the future. I agree with the proposal of some authors (e.g. Diederiks Verschoor⁶⁷) that the delimitation line could be set at 100 km above the surface of the Earth. This line is known as the *Kármán line* and is used as a working definition by the Fédération Aéronautique Internationale (hereafter FAI).⁶⁸ This altitude seems to be the most appropriate, since this is the lowest perigee of the satellite orbits, and is unattainable for aircraft.

⁶⁶ *Ibid.* 39, p. 19.

⁶⁷ *Ibid.* 39, p. 21.

⁶⁸ *Ibid.* 39, p. 20.

3. UNIVERSAL, REGIONAL AND NATIONAL ORGANISATIONS GOVERNING SPACE ACTIVITIES

Chapter 3 introduces the more important organisations and their impact on space law. Due to some of them being irrelevant when considering the scope of this thesis, they will not be described extensively.

In the course of developing space law different international organisations have been recognised as important contributors in regard to outer space. There are different intergovernmental organisations (organisations founded by countries under international law), non-governmental organisations, regional, and national organisations governing outer space activities, some from the aspect of space science and some from the aspect of space law.

Moreover, there has been a significant historical change from the times when only two countries were able to engage in outer space activities. Nowadays the number of countries with this ability is increasing, accompanied by many international organisations and business entities that also show an interest.

Therefore, international organisations are especially important for smaller countries that, due to their limited resources (technology, financial costs etc.) are incapable of attaining outer space for themselves. By joining these international organisations countries with limited resources can become involved in outer space activities. Such organisations enable countries to participate in joint-ventures for attaining common goals. It is up to countries to assess whether they are capable of fulfilling the admission criteria and planning their strategic goals accordingly. ESA is the most important organisation for European countries, as is described in Subchapter 3.2 (see *infra* page 18).

As mentioned before, there are many different organisations, e.g. The International Astronautical Federation (hereafter IAF)⁶⁹, the International Academy of Astronautics (hereafter IAA), the International Institute of Space Law (hereafter IISL),⁷⁰ the International Law Association (hereafter ILA), and the International Air and Space Law Association (IASLA)⁷¹. Nowadays, not only those organisations whose main preoccupation is outer space discuss the possibilities that may arise within this field in future, e.g. the Competitive Enterprise Institute (hereafter CEI)⁷², an NGO organisation whose main aim is entrepreneurship and free market initiatives. CEI in April 2012 published a paper 'Homesteading the Final Frontier – A Practical Proposal for Securing Property Rights in Space' (by Rand Simberg)⁷³ which is presented in Subchapter 5.2 (see *infra* page 34). Outer space has always been a very interesting topic and is gradually attracting even more interest. Due to constraints imposed by legislation, this is still just the beginning and we will soon see what lies in store.

⁶⁹ International Astronautical Federation, <http://www.iafastro.com/>. (last visited 14.6.2013).

⁷⁰ International Institute of Space Law, <http://www.iislweb.org/>. (last visited 14.6.2013).

⁷¹ International Air and Space Law Association, <http://www.spacemoot.org/>. (last visited 14.6.2013).

⁷² Competitive Enterprise Institute, <http://cei.org/>. (last visited 14.6.2013).

⁷³ Simberg R., Homesteading the Final Frontier – A Practical Proposal for Securing Property Rights in Space, 2012.

3.1 THE UNITED NATIONS AND INTERNATIONAL SPACE LAW

The United Nations organisation (UN) was founded in 1945 after World War 2 in succession to the League of Nations. Nowadays the UN is the world's largest and most prominent international and universal organisation with the aim and commitment of maintaining international peace and security by developing friendly relations amongst nations and promoting social progress, better living standards, and human rights. The UN's field of activity is to promote and facilitate cooperation in international law, international security, economic development, social progress, human rights, civil rights, civil liberties, political freedoms, and democracy.⁷⁴ In the year it was founded it had 51 member states, whilst according to the latest information it now has 193 member states and 2 observer states.⁷⁵

The UN has been involved in outer space-related activities from its conception under the UN Charter for the progressive development of international law and through the Committee on the Peaceful Uses of Outer Space (hereafter UNCOPUS), especially in terms of overseeing a legal framework regarding outer space through its Legal Subcommittee. It has introduced five international legal instruments governing space activities that have all entered into force – t.i. *Corpus Iuris Spatialis Internationalis*, and the General Assembly has adopted five sets of Principles governing activities in outer space, also known as Space Resolutions. They are presented in Chapter 4 (see *infra* page 22). Therefore, the UN instigated the basis for what has become a separate and distinct discipline within the field of international law, i.e. international space law.⁷⁶

Furthermore, international law which applies to outer space is also included within the UN Charter and this obliges all UN members to settle disputes by peaceful means and prohibits the threat of or actual use of force against the territorial integrity or political independence of another state. The charter also recognises a state's inherent right to act in individual or collective self-defence.⁷⁷

In addition, legal instruments adopted by some specialised agencies of the UN also provided some principles during the development of international space law. For example, the United Nations Educational, Scientific and Cultural Organisation (hereafter UNESCO) adopted the Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange in 1972. In 1974, UNESCO and the World Intellectual Property Organisation (WIPO) formulated the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite. The International Telecommunications Union (ITU) within its Constitution and Convention provides regulatory bases for the allocation of orbital and spectra uses in space. Article 44 of the ITU Constitution provides for equitable access to orbital and spectra resources in space and the ITU is the most important regulatory regime for telecommunications in outer space. Although these instruments are specific in nature, they nevertheless presents a source of international customary law, which is an essential part of international space law (see *infra* Chapter 4).⁷⁸

⁷⁴ UN at a glance, <https://www.un.org/en/aboutun/index.shtml>. (last visited 14.6.2013).

⁷⁵ Member states of the UN, <https://www.un.org/en/members/index.shtml>. (last visited 14.6.2013).

⁷⁶ *Ibid.* 37, p. 88.

⁷⁷ *Ibid.* 43, p. 44.

⁷⁸ *Ibid.* 30, p. 200.

Consequently, the role of the UN must also be taken into consideration when regarding the fact that international space law started to develop under the aegis of this international organisation.⁷⁹ Despite the interest in space activities generally improving, the UN still remains one of the greatest contributors to international space law and also the most authoritative when evolving it.⁸⁰

3.1.1. United Nations Office for Outer Space Affairs (UNOOSA)

The UN Office for Outer Space Affairs (hereafter UNOOSA) was initially established on 13th December 1958 by a General Assembly resolution⁸¹ as a small expert unit within the Secretariat for providing services to the *ad hoc* UNCOPUOS. It was later transformed in the years 1962, 1968, and 1992, due to increasing demand, and became an Office for Outer Space Affairs within the department for Political Affairs. In 1993 it was relocated to Vienna and assumed responsibility for substantive secretariat services to the Legal Subcommittee (previously it had been provided by the Office of Legal Affairs in New York).⁸²

Nowadays, UNOOSA represents the main organisation for space affairs within the UN, which implements the decisions of the GA and the UNCOPUOS, and is the primary international forum for the development of laws and principles governing outer space.⁸³ Its field of activity is to support intergovernmental discussions and the Committee and its Scientific and Technical Subcommittee and Legal Subcommittee. Moreover, it assists developing countries in using space technology for development and also follows all scientific and technical developments relating to outer space affairs. It maintains the Register of Space Objects on behalf of the Secretary General (see *infra* Subchapter 4.5) and also collects other relevant data and documentation.⁸⁴

UNOOSA is also responsible for providing sufficient information to other specialised agencies of UN and to coordinate their activities. In order to fulfil this goal more efficiently, UNOOSA organises an annual UN Inter-Agency Meeting on Outer Space Activities since 1980. The aim of these meetings is to discuss current and future activities, newest technologies and all other relevant matters. After the meeting is finished two reports are produced and one is sent to UNCOPUOS and the second one is a report on the coordinated space-related activities of the UN system.⁸⁵

Within the UNOOSA UN Platform for Space-based Information for Disaster Management and Emergency Response (hereafter UN-SPIDER programme)⁸⁶ was established by UN GA resolution.⁸⁷ UNOOSA is responsible for its implementation. Mission of UN-SPIDER programme is to "Ensure that all countries and international and regional organisations have access to and develop the capacity to use all types of

⁷⁹ Keršič L., *Druga generacija vesoljskega prava*, 2011, p. 6.

⁸⁰ *Ibid.* 37, p. 56.

⁸¹ General Assembly Resolution 1348 (XIII) of 13 December 1958.

⁸² United Nations Office for Outer Space Affairs (UNOOSA), <http://www.oosa.unvienna.org/oosa/en/OOSA/index.html>. (last visited 14.6.2013).

⁸³ *Ibid.* 43, p. 43.

⁸⁴ *Ibid.* 1, p. 17.

⁸⁵ Space Solutions for the World's Problems, <http://www.uncosa.unvienna.org/uncosa/en/index.html>. (last visited 14.6.2013).

⁸⁶ UN-SPIDER <http://www.un-spider.org/>.(last visited 14.6.2013).

⁸⁷ UN GA 61/110 of 14 December 2006.

space-based information to support the full disaster management cycle⁸⁸. This is done by a platform that facilitates the use of space-based technologies for disaster management and emergency response; e.g. as in the Maldives.⁸⁹

3.1.2. The United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)

The UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) was established in 1958 as an *ad hoc* committee by the GA of the UN⁹⁰, who recognised the need for a mechanism ensuring cooperation on a global level in outer space activities. It was established regarding the 'Question of the Peaceful Use of Outer Space', and made permanent a year later.⁹¹ It is especially important to mention in the terms of the thesis the fact that one of the reasons for establishing such a committee was a concern that the new technology could lead to the colonisation of outer space, which could consequently lead to militarisation of this new frontier.⁹² Argument for such decision by the GA of the UN also pointed towards a new area of activity, which was at that time a *tabula rasa*.⁹³

At the beginning UNCOPUOS had 18 members and over the years this number increased to 74 in 2012.⁹⁴ This number has its own pitfalls and advantages as explained later in Subchapter 3.3 (see *infra* page 19).

UNCOPUOS contains one full committee and two sub-committees, the Scientific and Technical Sub-Committee and the Legal Sub-Committee⁹⁵, the Legal Sub-Committee usually being responsible for the initial drafts regarding legal matters. Each sub-committee prepares a report that is given to main committee, and the main committee prepares the final annual report. The final report then goes to UN GA and every year a resolution is adopted.⁹⁶

UNCOPUOS normally proceeds by consensus. This was not the case in UNGA Res. 27/92, the Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting' in 1982⁹⁷, when it was approved by a majority votes in both UNCOPUOS and the UN GA. Although this resolution was adopted, it is generally accepted that it is without teeth, since those states that could practise this resolution voted against it or abstained. This resulted in a strengthening of the practice of consensus within the committee.⁹⁸

⁸⁸ About UN-SPIDER, <http://www.oosa.unvienna.org/oosa/en/unspider/index.html>. (last visited 14.6.2013).

⁸⁹ Tirone J., Maldives' Disappearing Coast Prompts Appeal to UN Space Agency, Bloomberg.com, 5 June 2009.

⁹⁰ *Ibid.* 81.

⁹¹ UN GA Res. 1472 (XIV) of 12 December 1959.

⁹² *Ibid.* 37, p.23.

⁹³ *Ibid.* 1, p. 18.

⁹⁴ UNCOPUOS Members, <http://www.unoosa.org/oosa/COPUOS/members.html>. (last visited 14.6.2013).

⁹⁵ United Nations Committee on the Peaceful Uses of Outer Space, <http://www.oosa.unvienna.org/oosa/COPUOS/copuos.html>. (last visited 14.6.2013).

⁹⁶ *Ibid.* 1, p. 20.

⁹⁷ Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting', Adopted by the General Assembly in its resolution 37/92 of 10 December 1982.

⁹⁸ *Ibid.* 1, p. 20.

Consensus is a form of agreement reached without voting about the matter but rather by seeking unanimity amongst the parties. In practice this means that a proposal is made inside the UNCOPUOS and this is then negotiated and revised until all are willing to accept it and allow it to go to forward. In addition, this means that compromise is facilitated and it has also been proved in the cases of draft treaties that it is more likely the parties will ratify provisions within whose draft procedures they participated in ⁹⁹

3.2 EUROPEAN SPACE AGENCY (ESA)

The European space agency is an intergovernmental organisation established in 1975 after merging the European Launch Development Organisation (hereafter ELDO) with the European Space Research Organisation (hereafter ESRO). Gradually it has become a major player in the exploration and usage of outer space regarding its 20 member states.¹⁰⁰

In 1960 the Council of Europe recommended the creation of a European agency which would promote the peaceful uses of outer space, and develop and build a space vehicle. The Commission on Space Research (hereafter COPERS) was set up and they made the decision to have two separate organisations, since not all European countries were willing to become involved within the whole field of developing space science. In 1962 COPERS established the European Space Research Organisation (ESRO)¹⁰¹ and the European Launch Development Organisation (ELDO)¹⁰². After a few years it was proved that only a European space organisation would be more efficient, and the convention was adopted.¹⁰³

Similarly to the goals of the main European Union (hereafter EU) to unify countries in order to create a political and economic community that would be much stronger than those from each individual country, the ESA tries to establish cooperation amongst countries in the field of outer space activities. By 1950 it was already clear to countries in Europe that if they do not want to lag behind, and that cooperation amongst them was necessary when considering the amount of financial, technical, and intellectual resources needed for such activities, and especially since the USA and USSR were already in the lead after 2nd World War. The purpose of ESA is the promotion of space research, technology and applications by involving cooperation, and the internationalisation of national space programmes.¹⁰⁴

Thus, ESA is nowadays the main European inter-governmental organisation engaged in space and also the main partner of the EU's efforts regarding outer space. In 2003 a Framework Agreement¹⁰⁵ was drafted and entered into force in 2004 as one of the first

⁹⁹ *Ibid.* 1, p. 21.

¹⁰⁰ History of Europe in Space, http://www.esa.int/About_Us/Welcome_to_ESA/ESA_history/History_of_Europe_in_space. (last visited 14.6.2013).

¹⁰¹ by adopting a Convention for the Establishing of a European Organisation for the Development and Construction of Space Vehicle Launchers, 29 March 1962, entered into force 29 February 1964, 507 UNTS 177; (1964), UKTS 30, Cmnd. 2391; 1964 ATS 6.

¹⁰² by adopting a Convention for the Establishment of a European Space Research Organisation, entered into force, 14 June 1962, entered into force 20 March 1964, 528 UNTS 33; (1964) UKTS 56, Cmnd. 2489.

¹⁰³ Convention for the Establishment of a European Space Agency, 1297 UNTS 161, 187.

¹⁰⁴ *Ibid.* 1, p. 26.

¹⁰⁵ Framework agreement between the European Community and the European Space Agency, entered into force 28 May 2004.

steps towards a formal EU stance on space affairs.¹⁰⁶ Under this agreement the European Commission (hereafter EC) and ESA coordinate their actions through the joint Secretariat. The member states of the two organisations meet at ministerial level in the Space Council, which is a concomitant meeting of the EU and ESA Councils, prepared by member states' representatives in the High-level Space Policy Group (HSPG).¹⁰⁷ However, ESA is an entirely independent organisation, although it maintains close connections with the EU.¹⁰⁸

In 2007 the EU and ESA jointly developed the European Space Policy by a resolution¹⁰⁹ of the Space Council.¹¹⁰

3.3 ROLE OF UN AND ESA FOR SMALLER EUROPEAN COUNTRIES

The rationale behind this subchapter is in the fact that Slovenia is a member state of the EU and therefore the ESA and EU are rare possibilities for involvement in outer space activities – ESA as Europe's gateway to space.¹¹¹ There are many countries in similar situations as Slovenia, and for European countries the EU and ESA are organisations that could enable such countries to participate in outer space activities.

We can classify countries regarding their abilities regarding space as either *space-competent nations* or *space-incompetent nations*. Space-incompetent nations are predominantly those smaller countries that do not possess their own space technologies and could not afford to invest large sums of money in the development of such technology.¹¹² One of the main goals of the UN was not to repeat the same mistake again and start with *neo-colonialism* in outer space, which would once more end up leaving smaller and less-prominent countries behind, but to give them a chance to contribute and be involved.

The aim of ESA and its collaboration with the EU is to stimulate relations with interested European countries and moreover to expand the overall European scientific and industrial base by expanding ESA as a research and development organisation.¹¹³

Three stages are required in order to become a full member of ESA. In order to become a candidate for this agreement, a country must be European and have already signed a Framework Agreement with ESA. At this stage, the financial responsibilities for the country are very limited. Secondly, those countries that want higher levels of cooperation sign a European Cooperating State Agreement (ECS), a bilateral engagement between a country and ESA, allowing the partner country to participate indirectly in all ESA procurements and activities. This enables companies based in that country to participate in ESA procurements and almost all ESA programmes. The participation is defined within a five year Plan for the European Cooperating State (hereafter PECS), being jointly agreed between ESA and each individual country.

¹⁰⁶ *Ibid.* 1, p. 28.

¹⁰⁷ ESA and the EU, http://www.esa.int/About_Us/Welcome_to_ESA/ESA_and_the_EU2.

¹⁰⁸ New member states, http://www.esa.int/About_Us/Welcome_to_ESA/New_Member_States. (last visited 14.6.2013).

¹⁰⁹ Resolution on the European space policy, adopted 22 May 2007, ESA/C/CXCIV/Res.1.

¹¹⁰ *Ibid.* 108.

¹¹¹ Welcome at ESA, http://www.esa.int/About_Us/Welcome_to_ESA. (last visited 14.6.2013).

¹¹² *Ibid.* 1, p. 19.

¹¹³ What is ESA?, http://www.esa.int/About_Us/Welcome_to_ESA/What_is_ESA. (last visited 14.6.2013).

Finally, after this period the country can decide whether to begin negotiations to become a full member state or an associated state or to sign another PECS for a further period of 5 years.¹¹⁴

In March 2013, Latvia became the seventh European Cooperating State, following Slovenia in 2010, Estonia in 2009, Poland in 2007, Romania in 2006, and Hungary and the Czech Republic in 2003. The Czech Republic became a full Member State in November 2008, Romania in December 2011 and Poland in September 2012.¹¹⁵

Slovenia signed the Agreement between the Republic of Slovenia and the ESA concerning space cooperation for peaceful purposes on 28th May 2008¹¹⁶ with the purpose “of establishing a legal framework for cooperation between the Parties in the field of research and peaceful usage of outer space and the conditions for implementing projects of mutual interest” (Article 1 of the Agreement¹¹⁷). In January 2010 Slovenia signed a European Cooperating State Agreement (ECS), which enables Slovenia to participate in different ESA programmes. The overall objective of the PECS is “to associate the Republic of Slovenia with the Agency’s programmes and activities and to prepare, in the most efficient manner, possible future accession to the ESA Convention”.¹¹⁸

Since Slovenia is a member state of the EU it is therefore also affected by the collaboration between EU and ESA (although, as mentioned before, ESA is an entirely independent organisation). In 2007 the EU and ESA jointly developed the European Space Policy in a resolution¹¹⁹ of the Space Council.¹²⁰ The European Space Policy is significant due to the fact that “it is the first wholly joint document addressing all dimensions of space activities, compiled and adopted after extensive consultations with member countries of the EU and ESA, as well as industry and other key stakeholders, and given an endorsement by those member countries.”¹²¹

UNCOPUOS is essential in regard to the fact that all countries of the world who are members of the UN can become members of UNCOPUOS whether possessing or not the technology to launch satellites, space rockets etc. As mentioned previously this means that the UN respects the principle of equality and this enables smaller countries to present their positions on outer space affairs. Through UNCOPUOS they can become directly involved in decision-making processes. According to the latest information there are 74 members, but Slovenia is not one of them. This number means UNCOPUOS is one of the largest Committees within the UN.¹²² On the one hand this enables all countries to represent their interests, i.e. both space-competent and space-incompetent countries, but on the other, a high number of members also

¹¹⁴ European cooperating states,
http://www.esa.int/About_Us/Welcome_to_ESA/European_Cooperating_States. (last visited 14.6.2013).

¹¹⁵ *Ibid.*

¹¹⁶ *Ibid.* 10.

¹¹⁷ *Ibid.*

¹¹⁸ European Cooperating State Agreement between the Republic of Slovenia and the ESA, signed 22 January 2010, Official Gazette No. 46/2010.

¹¹⁹ *Ibid.* 109.

¹²⁰ *Ibid.* 108.

¹²¹ Space – ESP background,

http://ec.europa.eu/enterprise/policies/space/esp/background/index_en.htm. (last visited 14.6.2013).

¹²² *Ibid.* 94.

mean that UNCOPUOS is unwieldy, as almost 1/3rd of UN members are potentially involved in the development of space law.¹²³

Furthermore, many of these countries display a lack of expertise and interest, which results in a slowing down of productivity by UNCOPUOS. The outcome for UNCOPUOS might even be a reduction to the lowest common denominator.¹²⁴ However, the procedure of achieving consent also means that space-competent nations do not always get what they want from UNCOPUOS, since they need to achieve the consent of members.

Moreover, this outlines the importance of promoting international cooperation and spreading the knowledge and awareness of opportunities for economic, social and cultural development, particularly amongst developing countries. This was also the main goal of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (hereafter UNISPACE III), which was held in Vienna in July 1999. Those countries that participated also adopted the Space Millennium: Vienna Declaration on space and Human Development¹²⁵, which emphasises international cooperation in space activities.¹²⁶ The significance of this document was also highlighted, *inter alia*, at the 55th session of UNCOPUOS held from the 6th to 15th June in Vienna, where one of the main points on the agenda was to check the progress in enforcing the recommendations of UNISPACE¹²⁷. In addition, one of the outcomes of the implementation of the recommendations of UNISPACE III from when it took place until now was the establishment of the International Committee on Global Navigation Satellite Systems (ICG) and UN-SPIDER (see *supra* Subchapter 3.1.1).¹²⁸

¹²³ *Ibid.* 1, p.19.

¹²⁴ *Ibid.*

¹²⁵ Space Millennium: Vienna Declaration on space and Human Development, General Assembly resolution 2222 (XXI).

¹²⁶ Tronchetti F., The exploitation of natural resources of the Moon and other celestial bodies – A proposal for a legal regime, 2009, p. 80.

¹²⁷ 55th session of UNCOPUOS, UN document A/67/20, 2012.

¹²⁸ *Ibid.* p. 11.

4. LEGISLATION (SOURCES OF SPACE LAW) REGULATING THE EXPLOITATION OF OUTER SPACE

The aim of Chapter 4 is to present and assess the sources of space law – *de lege lata*, especially from the aspect of exploiting outer space.

According to Francis Lyall and Paul B. Larsen International space law is divided into three main legal aspects – *public international* law aspect, *private international* law aspect, and *national* law aspect, which are accompanied by *hybrid* aspects.¹²⁹ When referring to the term “space law”, this means a whole body of law, consisting of both international and domestic space laws. International space law refers to the rights and obligations on the international level, as included in treaties that individual states have signed and ratified, whereas domestic space law refers to national legislation.¹³⁰

Over recent years, we have been witnessing the development of mainly national laws, especially in the field of private space activities. However, the future evolution of space law is mainly dependant on progressing technology and science.¹³¹

National space laws

Municipal (domestic) space law has developed especially in space active states. It can be divided into three main aspects – (1.) regulations and procedures for dealing with space matters; (2.) application of domestic legislation to outer space in the sense of material jurisdiction; (3.) implementation of international agreements (treaties, conventions etc.) within the state.¹³²

Due to the increasing private commercial uses of outer space, national legislation has a delicate responsibility and obligation to implement both multilateral and bilateral international laws and also impose national regulations consistent with international laws. Nowadays, space law does not consist solely of UN-made laws. It is estimated, that national space legislation exists in more than 20 countries. This might be a result of the fact that there have been no UN space treaties or agreements since 1979 and that the “golden age” (fr. *la grande époque*¹³³) of public international space law was very short lived.¹³⁴ The virtue of domestic legislation lies in the fact that it can be regulated more intensively and extensively in comparison with space law treaties. Therefore, space law is more effective by the intelligent adoption of appropriate national provisions.¹³⁵ Domestic space law will tend to become even more important in the future. There is a huge volume of space law resulting from bilateral treaties entered into by space-competent countries. Contributors are also those specialised agencies of the UN and different organisations (international government and non-government organisations), which were mentioned in Chapter 3 (see *supra* page 12).¹³⁶

¹²⁹ *Ibid.* 1, p. 31.

¹³⁰ *Ibid.* 43, p. 43.

¹³¹ Vereshchetin S. V., The law of outer space in the general legal field (commonality and particularities), 2010, p.48.

¹³² *Ibid.* 1, p. 33.

¹³³ Momoh W., An overview of Nigerian Space Activity and space law, p. 105.

¹³⁴ *Ibid.* 131, p. 44.

¹³⁵ *Ibid.* 1, p. 37.

¹³⁶ *Ibid.* 133.

Public international space law

As already mentioned, public international space law is a new part of ordinary public international law, as characterised by an affinity to respond quickly to scientific discoveries and technological developments. Primarily, it is affected by multilateral space treaties and at that time these were adopted only by countries. The reality of that time is that only two countries were space-competent i.e. US and USSR, which were monopolistic in terms of outer space and exercised the greatest amount of power and influence over the development of a regime in outer space.¹³⁷ Since then, many things have changed and now the number of space-competent countries is proliferating whilst on the other hand so are the international organisations, but most importantly business entities have started to ambitiously engage in outer space activities. Therefore, the sources of space law and its applicability to current happenings are in this sense of vital interest to the international community. The sources of international law are listed in Article 38 (1) of the Statute of the International Court of Justice (hereafter ICJ):

Article 38

- 1. The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:*
 - a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;*
 - b. international custom, as evidence of a general practice accepted as law;*
 - c. the general principles of law recognized by civilized nations;*
 - d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.*¹³⁸

Space law treaties and customs are very relevant, especially in the field of international law. Treaties are one of the more important sources of international law, which need to be ratified by countries and therefore they are bound by the obligations they contain.

On the one hand, treaties are one of the characteristics of space law, since it is mostly “conventional” law, i.e. obligations laid down in treaties, conventions, and other types of international agreements. Another characteristic is the predominance of multilateral agreements – there are a few well-known space law treaties, which have been adopted through the mechanism of the UN, which have played a decisive role in creating space law right from the beginning. However, this has also prevented the possibility of uncontrollable activities and chaos in outer space.¹³⁹ The most important UN space treaties are also known as *Corpus Iuris Spatialis Internationalis*, which developed despite the tensions of the Cold War era and more importantly have allowed space-competent countries in difficulties to predict their own interests in outer space.¹⁴⁰ *Corpus Iuris Spatialis Internationalis* is a grouping of five multilateral treaties (legal instruments) governing outer space activities: the Outer Space Treaty (1967), the Rescue Agreement (1968), the Liability Convention (1972), the Registration Convention (1975) and the Moon Treaty (1979). In addition, some experts also

¹³⁷ Csabafi A. I., The concept of state jurisdiction in international space law, 1971, p. 81.

¹³⁸ Statute of ICJ, adopted on 14 April 1978 and entered into force on 1 July 1978.

¹³⁹ *Ibid.* 39, p. 25.

¹⁴⁰ Beebe B., Law's empire and the final frontier: legalising the future in the Early *Corpus Iuris Spatialis*, 1999, p. 1738.

included the Partial Test Ban Treaty (1963) into *Corpus Iuris Spatialis Internationalis*, which will be presented in the following subchapters.¹⁴¹

In regard to Slovenian endeavours in outer space, Slovenia has signed and ratified 3 treaties of *Corpus Iuris Spatialis Internationalis* – the Rescue Agreement¹⁴², the Liability Convention¹⁴³, and also the Partial Test Ban Treaty¹⁴⁴ to date.¹⁴⁵ Slovenia became a party through its independence from the former Socialist Federative Republic of Yugoslavia (hereafter SFRY), which led to the succession of those treaties.

It is important within this context to mention the UN General Assembly (hereafter UN GA) resolutions which were adopted between 1959 and 1969 expressing the will of the international community regarding outer space and were at that time recognised as an "Instant customary international law".¹⁴⁶ Some of the principles of these resolutions were then also implied within the previously mentioned *Corpus Iuris Spatialis Internationalis*, especially OST. Furthermore, UNGA adopted 5 declarations and legal principles, also known as the *Space Resolutions*, in order to encourage the exercising of international laws. These are the 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space' Res. 1962 (XVIII) of 13th December 1963, the 'Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting' Res. 37/92 of 10th December 1982, the 'Principles Relating to Remote Sensing of the Earth from Outer Space' Res. 41/65 of 3rd December 1986, the 'Principles Relevant to the Use of Nuclear Power Sources in Outer Space' Res. 47/68 of 14th December 1992, and the 'Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking into Particular Account the Needs of Developing Countries' Res. 51/122 of 13th December 1996. The latter is also known also as the 'Declaration on space benefits'.¹⁴⁷ In their Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons of 1996, the Court noted that GA resolutions were not binding, but could nevertheless sometimes have a normative value. In certain circumstances they provide essential evidence for establishing the existence of a rule or the *opinio iuris*.¹⁴⁸ Nevertheless, the Declaration on space benefits will be presented in Subchapter 5.1 (see *infra*), as it presents an important addition to the scope of this thesis.

Alternatively, in addition to treaties customary law (lat. *Ius Gentium*) is also included within Art 38 (b) of the ICJ statute as one of the sources of International public law. Customary law is the other major formal source of international space law. Nevertheless, the previously mentioned international legal instruments (agreements, treaties, conventions) are in force and the role of custom in space law is still very

¹⁴¹ Lee R., Creating a practical legal framework for the commercial exploitation of mineral resources, 2009, p. 185.

¹⁴² Sporazum o reševanju astronavtov, vračanja astronavtov in vračanju predmetov, izstreljenih v vesolje, Official Gazette SFRJ-MP, nr. 21/1971.

¹⁴³ Konvencija o mednarodni odškodninski obveznosti za škodo, ki jo povzročijo vesoljska vozila, Official Gazette SFRJ-MP, nr. 9/1977.

¹⁴⁴ Pogodba o prepovedi poskusov z jedrskim orožjem v atmosferi, v nadzračnem prostoru in pod vodo, Official Gazette SFRJ-MP, nr. 11/1963.

¹⁴⁵ Treaty signatures, <http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do>. (last visited 14.6.2013).

¹⁴⁶ Hearsey M. C., A review of challenges to corporate expansion into outer space, 2008, p.6; and *Ibid.* 141, p. 213.

¹⁴⁷ *Ibid.* 126, p. 61.

¹⁴⁸ *Ibid.* 1, p. 46; and Legality of the Threat or Use by a State of Nuclear Weapons in Armed Conflict, Advisory Opinion, 8 July 1996.

important. However, special rules for customary law have to be established and applied in this regard. Besides its practice or habit amongst states, there must also be recognition that such practice follows a rule legally binding upon them and *opinio iuris sive necessitatis*¹⁴⁹. Custom in international law cannot be used interchangeably with the mere usage (although well-established) or rules of courtesy (rules recognised by states as part of courtesy not law). In comparison with international agreements, customary law is subjected to different opinions when it comes to recognising sufficient grounds for the existence of a rule of custom. In addition, there is also the time factor, when certain norms become legally binding and this also causes different opinions.¹⁵⁰ An example of customary space law is the universal acquiescence of countries in allowing satellites belonging to another country to free passage into outer space. This rule of space law came into effect when the USSR launched Sputnik 1 in 1957 and no single country objected then or has since.¹⁵¹ Nevertheless, there will always remain academics, experts, and politicians who will disagree with this.

Moreover, the first four of the five treaties and conventions of *Corpus Iuris Spatialis Internationalis* are considered part of customary international law, apart from the Moon Agreement, which is considered to have failed in fulfilling its objective (see *infra* Subchapter 4.6). In the cases of OST and the Rescue Agreement, both fulfil the indications as presented in the North Sea Continental Shelf Cases that “the treaty may reflect customs as agreed by the States during its negotiation process through statements that may constitute *opinio iuris*”¹⁵² and that “the treaty provision has become accepted and followed by States as custom after its adoption and is said to have “crystallised” into customary norms of international law”¹⁵³¹⁵⁴. Since both treaties are so widely accepted when considering the number of ratifications, this suggests that the international community as a whole has accepted their provisions to be customary norms of international law. On top of that, state practice or *opinion iuris* that would be contrary to the terms of these treaties is absent and this additionally supports this hypothesis.¹⁵⁵

In comparison, treaty-making procedures are also long and complicated in terms of finding a consensus. And even after agreements are established and signed, they usually have to be ratified, which could cause additional time delays. This has been proven over many years now, e.g. proceeding from literature published in 1964¹⁵⁶ and 2009¹⁵⁷.

Private international law aspect

Growing trans-border circulation of people, goods and services in this era of globalisation also has a huge influence on a domestic legal regulation via unification and harmonisation. National space activities have already become part of this process.

¹⁴⁹ Hearsey M. C., A review of challenges to corporate expansion into outer space, 2008, p.9.

¹⁵⁰ *Ibid.* 39, p. 10.

¹⁵¹ Listner J. M., The ownership and exploitation of outer space: look at foundational law and future legal challenges to current claims, 2003 and Ogunbanwo O. O., International law and outer space activities, 1975, p. 25.

¹⁵² North Sea Continental Shelf Cases, 1969 ICJ Rep. Judgement, para. 71 and 72.

¹⁵³ *Ibid.*, para. 61.

¹⁵⁴ *Ibid.* 141, p. 214.

¹⁵⁵ *Ibid.*

¹⁵⁶ Cohen A. M., Law and politics in space, 1964, p.98.

¹⁵⁷ *Ibid.* 1., p. 39-40.

The draft version of the UNIDROIT Space Protocol¹⁵⁸ is a good example of a private international law instrument with the specific intention of serving space activities with the aim of unifying domestic law legislation relating to asset-based commercial space financing. It represents the “coordinated efforts of both Governments and the commercial space sector to make asset-based financing more accessible to any industry that is presently searching for innovative ways to obtain start-up capital for space-based services.”¹⁵⁹ Since similar problems are directly connected to all key players within commercial space activities, i.e. manufacturers, operators, financiers, and insurers, this protocol will help to mitigate the risks involved in private financing.¹⁶⁰

However, private international law can also contribute to *ius gentium* regarding those agreements and partnerships in regard to the International Space Station (ISS), including the various Memoranda of Understanding regarding criminal jurisdiction, intellectual property and patents, and space tourism.¹⁶¹ Under the aegis of different types of organisations, customary space law is formulated through the internal procedures evolved, especially through the negotiations of international agreements (e.g. Space Station Agreements), and through the implementation of international space practices.¹⁶²

Finally, the overarching number of different documents referring to space activities endorses the common opinion about the complexities regarding international space law.

4.1 PARTIAL TEST BAN TREATY OF 1963

The “Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water”¹⁶³, also referred to as the Partial Test Ban Treaty (PTBT), Limited Test Ban Treaty (LTBT) or ‘Nuclear Test Ban Treaty’¹⁶⁴. The latter also refers to the Comprehensive Test Ban Treaty, see *infra* Subchapter 5.3.

The partial test ban treaty currently has 117 parties, including the United States. Countries known to have tested nuclear weapons but which have not signed the treaty are China, France, and North Korea.¹⁶⁵

The Partial test ban treaty is not a UN space treaty however it is the first multilateral treaty that contains specific international legal obligations on the usage of space by countries. It requires countries to prohibit and prevent the testing of nuclear weapons in space by their agencies and nationals (Article 1). Since this requirement is not repeated in other UN space treaties, only the parties to this treaty are prohibited from testing such weapons in space. OST prohibits the deployment of weapons of mass destruction in space and stipulates a complete demilitarisation of celestial bodies.

¹⁵⁸ draft version of The Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets, adopted by a diplomatic Conference, Berlin, March 2012.

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.* 131, p. 44.

¹⁶¹ *Ibid.* 149, p.8.

¹⁶² *Ibid.* 1, p. 25.

¹⁶³ Opened for signature on 5 August 1963, 480 U.N.T.S. 43; 14 U.S.T. 1313; entered into force 10 October 1963.

¹⁶⁴ *Ibid.* 141, p. 185.

¹⁶⁵ Graham T., The law and the military use of outer space, 2004, p. 91.

Consequently, this inherently also prevents the testing of nuclear weapons on celestial bodies.

4.2 OUTER SPACE TREATY (THE OST) OF 1967

The 'Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies'¹⁶⁶, also referred to as 'Outer space treaty (OST)' or 'Magna Carta of Space'¹⁶⁷; is the primary and basic legal instrument governing the law of outer space.¹⁶⁸ It was created after UNCOPUOS presented its basic principles governing the usage of outer space and was built upon those foundations. Since its creation in 1967 it has been ratified by 102 countries, 27 countries have signed the treaty but have yet not completed ratified it. The last country to accede to the treaty was Azerbaijan.¹⁶⁹

Hereafter is a list of the principles presented in OST:

- Outer space is "the province of all mankind" (lat. *Res Communis Omnium*¹⁷⁰) and serves as the parent for the subject matter of the other four space law treaties
- Outer space is used for *peaceful purposes*
- Placement of nuclear weapons or any other weapon of mass destruction in the orbit of Earth or on any celestial body is strictly prohibited
- States are required to render assistance to astronauts in distress whether in space, the high seas or within the territories of another nations, and are obliged to inform others of conditions that may prove hazardous to astronauts
- States are required to take responsibility for the activities in outer space of non-governmental entities that are under its jurisdiction, as well as detailing the natures of objects launched into space and the natures of any activities performed in space, and to furthermore impose liabilities for any damages caused by a space object on Earth or to another State's property in the course of any space activity
- Any object launched continues to be the property of the State that launched it regardless of whether it lands in sovereign territory or the territory of another State.
- States are obliged to preserve the environment of outer space in the course of their activities and allow other states to observe its space activities and also duly disclose the nature of its space activities.¹⁷¹

In the 1960's there were concerns that UN treaties and principles would develop under the prevailing influences of the US and USSR, as at that time they were the most (and

¹⁶⁶ Adopted by the General Assembly in its resolution 2222 (XXI) of 19 December 1966. Treaty was opened for signature in the US, UK and USSR on January 27 1967, and entered into force on October 10, 1967.

¹⁶⁷ *Ibid.* 1, p.53.

¹⁶⁸ Listner J. M., International space law: An overview of law and issues, 2011, p. 63.

¹⁶⁹ Valiyev, H., Azerbaijan improves legal framework for space cooperation, Trend.az, 13 May 2013, <http://en.trend.az/regions/scaucasus/azerbaijan/2149769.html>. (last visited 14.6.2013).

¹⁷⁰ *Ibid.* 141, p. 441.

¹⁷¹ *Ibid.* 168, p. 8.

only) powerful and influential countries, although the power should have been diffused in the manner of a multipolar world.¹⁷²

OST proves that the UN was aware of the possible consequences if a *res nullius* regime concerning outer space were to be permitted, and furthermore this was the initial focus of the drafters of the OST.¹⁷³ The drafters rejected the concept of *res nullius* which would have treated outer space as “unclaimed territory” available for conquest, since it belonged to no-one. This would inevitably have led to national appropriation of the celestial bodies and rejection of the rights of others.¹⁷⁴ Similar regimes regarding colonialism that took place from the 15th until the early 20th centuries, brought mankind to the 1st World War and this could be repeat once more, but this time with the possibly of even more severe consequences, due to a possible use of weapons of mass destruction, such as nuclear weapons in outer space.

Therefore, it was of utmost importance that the UN endeavoured and succeeded in enforcing with mutual recognition a basic legal framework of international space law and applying the principle *res communis omnium* - all entities, individual or corporate, and nations have common access to the resources and are precluded from making any claims of ownership.¹⁷⁵ The question is whether this legal regime is still appropriate after 60 years.

4.3 RESCUE AGREEMENT OF 1968

‘The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space’¹⁷⁶, also referred to as the ‘Rescue Agreement’¹⁷⁷; is an international agreement that expands on those duties introduced in Article 5 of the OST for rendering assistance to astronauts in distress. It does not include any provisions that would directly affect the exploitation of outer space. Since its creation in 1967 it has been ratified by 92 countries, 24 countries have signed the treaty but have yet not completed ratification. The agreements have also been signed by two international inter-governmental organisations - the ESA and the European Organisation for the Exploitation of Meteorological Satellites.

The Rescue Agreement delineates the requirement of a state to come to the aid of astronauts in distress and reinforces the principle that a spacecraft will continue to belong to the State that launched it and requires that it must be returned in the event of a rescue.¹⁷⁸

¹⁷² *Ibid.* 156, p.125.

¹⁷³ *Ibid.* 140.

¹⁷⁴ *Ibid.*

¹⁷⁵ *Ibid.* 140.

¹⁷⁶ Adopted by the General Assembly in its resolution 2345 (XXII) of 19 December 1967. Agreement was opened for signature on 22 April 1968, and entered into force on 3 December 1968.

¹⁷⁷ *Ibid.* 39, p. 33.

¹⁷⁸ *Ibid.* 168, p. 63.

4.4 LIABILITY CONVENTION OF 1972

'The Convention on International Liability for Damage Caused by Space Objects, also known as the Space Liability Convention'¹⁷⁹, also referred to as the 'Liability Convention'¹⁸⁰; is a treaty that expands on the liability rules for damage caused by space objects created in the OST (articles 6 and 7). Since its creation in 1972 it has been ratified by 89 countries, 22 countries have signed the treaty but have yet not completed ratification. The agreements have also been signed by two international inter-governmental organisations - the ESA and the European Organisation for the Exploitation of Meteorological Satellites (hereafter EUMETSAT) and the European Telecommunications Satellite Organisation (hereafter EUTELSAT).

Liability convention is the only convention in *Corpus Iuris Spatialis Internationalis* that constitutes provisions for the settlement of disputes.¹⁸¹ It establishes a system for claiming compensation for damages caused by a space object. The convention envisages two scenarios. In the first scenario a space object causes damage to the surface of the earth or an aircraft in flight. In this scenario the state is strictly liable for any damage caused by a space object launched even in the face of circumstances that are outside its control (strict liability). In the case of more than one state being responsible for the launch of the space object, then both states will be held jointly and severally liable for any damage caused. The strict liability of a State can be absolved in the case where it can prove that a claimant was grossly negligent or had the intent to cause the damage sustained.¹⁸²

In the second scenario, when a space object causes damage elsewhere than the surface of the earth (i.e. outer space or another celestial body). In this case the state can be liable only if it can be proved that it was due to the fault of the state or states.¹⁸³

Liability convention is the first and foremost mechanism for dispute settlements relating to space activities. Although the convention does not directly affect the exploitation of outer space, it is of key importance nevertheless. It provides legal certainty for all possible investors. However, there are some deficiencies that deserve special attention. To name only a few e.g. "the decision shall be final and binding if the parties have so agreed" (Article 19), which means the decision might only have the status of an advisory award. Moreover, only countries that are party to the convention, can act on behalf of natural or juridical persons who have suffered damage, which means that countries have the discretion to initiate action for their claims.¹⁸⁴

For the above-stated reasons and besides this, there are also some that are not mentioned, such as the Permanent Court of Arbitration (hereafter PCA) that adopted the Optional Rules for Arbitration of Disputes Relating to Outer Space Activities (Outer Space Rules)¹⁸⁵ in order to address *lacunae* within the existing dispute resolution

¹⁷⁹ Adopted by the General Assembly in its resolution 2777 (XXVI) of 29 November 1971. Convention was opened for signature on 1972, and entered into force in September 1972.

¹⁸⁰ *Ibid.* 39, p. 37.

¹⁸¹ Goh M. G., Dispute settlement in international space law, 2007, p. 23.

¹⁸² Similar scenario carried out when Cosmos 954 (USSR) fell from orbit on January 24 1978, and contaminated Canadian territory with its nuclear reactor debris, *Ibid.* 151, p. 64.

¹⁸³ Similar scenario carried out in the case of Collision between Iridium 33 satellite and the purportedly derelict Russian satellite Cosmos 2251, on February 10, 2009, *Ibid.* 151, p. 64.

¹⁸⁴ *Ibid.* 181.

¹⁸⁵ PCA Optional Rules for the Arbitration of Disputes Relating to Outer Space Activities, adopted by the Administrative Council of the PCA on 6 December 2011.

mechanisms of international space law.¹⁸⁶ These rules will be presented in Subchapter 5.1 (see *infra* page 32).

4.5 REGISTRATION CONVENTION OF 1975

'The Convention on the Registration of Launched Objects into Outer Space'¹⁸⁷, also referred to as the 'Registration Convention'¹⁸⁸; is a convention built on the principle of the OST that requires states to furnish to the UN details about the orbits of each space object. Since its creation in 1975 it has been ratified by 60 countries, 5 countries have signed the treaty but have not as yet completed ratification. The agreements have been signed also by two international inter-governmental organisations - the ESA and the European Organisation for the Exploitation of Meteorological Satellites.

Furthermore, the Registration convention elaborates on Article 8 of the OST and extends its scope and practical effect. The rationale of this convention is the preservation of outer space for peaceful purposes which could be overseen by a complete registry of spacecraft. As such, the registry would help to minimise the possibility of weapons of mass destruction being furtively put into orbit. Secondly, it is impossible to identify a spacecraft that has caused damage without an efficient system of registration, which would deter the holding of a state liable for damages caused by a spacecraft whose ownership could not be determined.¹⁸⁹

4.6 MOON AGREEMENT OF 1979

'The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies'¹⁹⁰, also referred to as the 'Moon Treaty' or 'Moon Agreement'¹⁹¹; is an international treaty that turns the jurisdiction of all celestial bodies (including the orbits around such bodies) over to the international community. It refers specifically to the Moon and other celestial bodies. It is known as the final and most "controversial child of OST."¹⁹²

Since its creation in 1979, it has been ratified by 15 states of which none are engaged in manned space exploration nor have any plans to do so. Therefore, the Moon Agreement is *de facto* a failed treaty.¹⁹³

The main principles contained in the Moon Agreement include:

- Prohibition of the use of force and all hostile acts and the requirement that the Moon and other celestial bodies are used exclusively for peaceful purposes. (Article 3)

¹⁸⁶ Pocar F., An introduction to the PCA's optional rules for arbitration of disputes relating to outer space activities, 2012, p. 171.

¹⁸⁷ Adopted by the General Assembly in its resolution 3235 (XXIX) of 12 November 1974. Convention entered into force on 15 September 1976.

¹⁸⁸ *Ibid.* 39. p. 46.

¹⁸⁹ *Ibid.* 39, p. 47.

¹⁹⁰ Adopted by the General Assembly in its resolution 34/68 of 5 December 1979. Agreement was opened for signature in 1979, and entered into force on 11 July 1984.

¹⁹¹ *Ibid.* 39, p. 48.

¹⁹² *Ibid.* 168.

¹⁹³ *Ibid.*

- The exploration and use of the Moon and other celestial bodies are to be conducted without discrimination of any kind, irrespective of the degree of economic or scientific development. (Article 4)
- The prevention of disruptions to the lunar environment and those of other celestial bodies by adverse changes or harmful contamination. (Article 7)
- The Moon and other celestial bodies and their natural resources are “common heritage of mankind” (lat. *res communis humanitatis*¹⁹⁴)
- the establishment of an international regime to govern the exploration and exploitation of natural mineral resources on the Moon and other celestial bodies.¹⁹⁵

It evolves the concept of non-appropriation by nations from the OST being the “province of all mankind” (lat. *Res Communis Omnis*) to the “common heritage of mankind” (lat. *Res Communis Humanitatis*)¹⁹⁶ and furthermore, closes the loophole for business entities in terms of laying claims to the moon or other celestial bodies, and also extends that prohibition to resources. The same regime is enforced on the deep seabed in the UN Convention on the high seas.¹⁹⁷ On one hand, it theoretically prevents business entities from claiming extra-terrestrial natural resources, but on the other, it does not prohibit their extraction.¹⁹⁸ Moreover, it implies a principle where an apportionment of the profits gained must be given to the less developed countries.

Finally, the Moon Agreement was a result of the conflicting positions of the US and the USSR. There was a common denominator that the legal issues concerning the Moon should be regulated by an international treaty. Mainly, the US wanted to force states to supply a maximum level of information on all levels of their activity and refused the proposition about establishing an international regime for exploitation. The USSR rejected the proposition of the US and demanded an appropriate legal regime before the start of exploitation. Eventually, all this led to the superpowers refraining from ratifying the Agreement.¹⁹⁹

¹⁹⁴ *Ibid.* 30, p. 206.

¹⁹⁵ *Ibid.*

¹⁹⁶ *Ibid.* 141, p. 519.

¹⁹⁷ *Ibid.* 60.

¹⁹⁸ *Ibid.* 168.

¹⁹⁹ *Ibid.* 39, p.53.

5. FUTURE REGIME IN OUTER SPACE

Chapter 5's rationale is to present speculations about future activities concerning the legal regime of outer space – *de lege fereda*. I also elaborate more on the main hypothesis, i.e. that the current legal regime is inappropriate; in order to furthermore approve what has been presented in the previous chapters. Within the scope of this thesis Subchapter 5.3 presents and emphasises the peaceful uses of outer space and the prevention of an arms race.

Chapter 5 of this thesis provides an insight into future activities in outer space especially from the exploitation point of view. As mentioned previously, technological and scientific advancement has brought us to the point where mankind will have to consider its next steps in order to enable fair exploitation of resources and not to cause once more a threat such as the period of the cold war.

5.1 INTERNATIONAL SPACE LAW *DE LEGE FEREDA*

This subchapter offers a few speculations about *de lege fereda* – future outer space activities in regard to the role of legislation and how the law concerning outer space might evolve and what could be the more important factors during this process.

Even before the Cold war was about to finish, many of those who were involved in preparing the legal framework for international space law, had begun to realise that this kind of framework would deter the commercial development of outer space. However, in the 1960's it seemed impossible that artificial satellites would be placed in orbit before the millennium in order to provide services such as remote sensing, weather prediction, direct television broadcasting, telecommunications, global positioning systems, and even human habitation at permanent space-stations (i.e. space settlements).²⁰⁰

In contrast, already in 1964 there were speculations that outer space exploration and possible commercialisation would not rely solely on existing scientific organisations specialising in terms of their professional fields, but also other organisations, professionals whose fields would be indirectly connected to outer space. This has already evolved up to a certain extent; however there is still a lot of space for improvement. This is especially true for smaller countries that are otherwise unable to attain space activities for themselves.²⁰¹

The modern era of globalisation, which is being followed by an increase in the trans-border movements of people, goods, and services, requires the harmonisation and unification of the respective domestic legislation. Outer space activities and related activities have become a part of this global process and *de lege fereda* will have to adapt appropriately.²⁰²

Consequently, Galloway's opinion "The task of formulating space law in the 21st century is different from that which suddenly skyrocketed beyond the Earth when

²⁰⁰ *Ibid.* 30, p. 195.

²⁰¹ *Ibid.* 156, p. 100-101.

²⁰² *Ibid.* 131, p. 45.

Sputnik 1 was orbited" adequately describes the current situation.²⁰³ *Summa summarum*, there are two main factors that contributed to the current situation. Firstly, UNCOPUOS decisions are made by consensus. On the one hand this means countries have to formulate universal acceptance but on the other hand it also results in vague and limited abstract terms (lack of precise definitions which lead to huge issues and leaves room for speculations and misinterpretations²⁰⁴), as the outcome of UNCOPUOS is often reduced to the lowest common denominator.²⁰⁵ Secondly, the pace of technological developments and scientific discoveries in space science is much faster than the progress of international space law. This results in the arising of new questions that have not as yet been considered by the legislation.²⁰⁶

In this aspect the 1996 Declaration on Space Benefits²⁰⁷ plays an important role, since it improves the general situation of relative backwardness regarding developing countries. However, the main aim of this declaration was to establish a regulatory framework which would further the proliferation of space technology and the sharing the benefits derived from space activities. Interestingly, during the drafting of this declaration the developing states softened their requests and therefore the final text is relatively different from the initial goals.²⁰⁸ The provisions constitute a legal framework under which any exploration and usages of outer space should be carried out in the interest of all countries. Once more, this underlines the freedom of exploration and the use of outer space, but in addition also reminds space competent countries to conduct their activities for the benefit of all states. Moreover, this also emphasises international cooperation, which encourages space incompetent countries to cooperate in joint projects.²⁰⁹

Furthermore, growing economic uses of space technology and the privatisation is leading to the wider applications of private international law which will have to be supported by appropriate procedures for dispute settlements. The establishment of an efficient dispute settlement mechanism for the settlement of legal disputes arising in relation to space commercialisation was also addressed at the already mentioned UNISPACE III conference (see *supra* page 20).²¹⁰ *Inter alia*, neither the Liability Convention nor any other treaties of *Corpus Iuris Spatialis Internationalis* provide efficient dispute resolutions for private entities. Thus, the Alternative Dispute Resolution (hereafter ADR) rules are also becoming more and more important for dispute resolution in international space law.²¹¹ As mentioned before, on December 6th, 2011, the Administrative Council of the PCA adopted the Optional Rules for the Arbitration of Disputes Relating to Outer Space Activities (Outer Space Rules)²¹² in order to address *lacunae* within the existing dispute resolution mechanisms of international space law. Outer Space Rules have a voluntary and binding dispute resolution mechanism adapted to the uniqueness of outer space and available to all parties engaged in respective economic activities in outer space. Furthermore, recognition and

²⁰³ *Ibid.* 30, p. 206 qtd. Galloway, Space law in the 21st Century (1998) 26 J SpaceL 187 at 187.

²⁰⁴ Košenina U., Novosti v mednarodnopravni ureditvi nadzračnega prostora, 2005, p. 55.

²⁰⁵ *Ibid.* 1, p.19.

²⁰⁶ *Ibid.* 30, p. 206.

²⁰⁷ Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, A/RES/51/122, 13 December 1996.

²⁰⁸ *Ibid.* 126, p. 79.

²⁰⁹ *Ibid.* 126. p. 78.

²¹⁰ *Ibid.* 181, p. 64.

²¹¹ *Ibid.* 181, p. 7.

²¹² *Ibid.* 186.

enforceability of arbitral awards is granted in all signatory countries of the New York Convention. Flexibility is ensured by the possibility of modifying arbitral procedures if so agreed by the parties. Lastly, parties to arbitration can also choose their arbiters (i.e. decision-makers) and thus preserve a high level of confidentiality, due to the fact that hearings and awards do not need to be published.²¹³

We may be noted that “The treaties were perhaps one of the first real attempts at establishing a global community that would work together to accomplish a goal. Space would not be divided up, as were the land masses on earth, through conquest and colonialism. Rather, the vision for space was one of humans working in harmony to better the lives of all mankind by exploring and possibly exploiting space resources for the good of all, in the spirit of cooperation and harmony.”²¹⁴ But all this has led us to the point where scientific discoveries and technical development have surpassed the slow process of evolving international space law.

5.2 OUTER SPACE AND FREE MARKET ECONOMY

The free enterprise system (the trade carried on in a free market economy, where resources are allocated on the basis of supply and demand) of today’s economies, which is recognised as being successful, although the financial crisis humanity is facing at the moment might change the whole perspective. Nevertheless, the same system will most probably be applied to future outer space commerce, where resources are practically unlimited. In future this could also become an *ultima ratio* for mankind, when the natural resources on the earth are depleted and exhausted.

However, there are a few constraints which make this idea impossible for the moment. Firstly, the problem remains about how to acquire them, due the amount of time needed to obtain resources and the related costs, which makes this business for now uneconomical and cost-ineffective. It is crucial to regulate and properly balance all interests that might be affected (e.g. societies, governments, protection of the environment).²¹⁵

Some high profile large industries of today and the colonisation period in history should have taught as a lesson and serve as an example as to why ethical concerns have clear grounds. It is our past negative experiences with companies that give rise to the concerns and doubts about our ethical business behaviour at the corporate level.²¹⁶

More than one case can be named proving the kinds of potential abuse that could befall the whole mankind when the free enterprise system is pushed too far; e.g. Cecil John Rhodes (1853-1902), who was of English descendant but born in South Africa was known for his successful business career in diamond mining (founder of the diamond company De Beers, which still sways the majority on the world’s rough diamonds market), and his efforts to expand the British Empire throughout Africa (i.e. colonisation).

²¹³ *Ibid.* 186, p. 179.

²¹⁴ Keefe H., *Making the Final Frontier Feasible: A Critical Look at the Current Body of Outer Space Law*, 1995, p. 345, 346.

²¹⁵ *Ibid.* 4, p. 2.

²¹⁶ *Ibid.* 4, p. 4.

Rhodes took into consideration commercial opportunities in outer space at the turn of the century, on his deathbed:

*"The world is nearly all parcelled out, and what there is left of it is being divided up, conquered, and colonized. To think of these stars that you see overhead at night, these vast worlds which we can never reach. I would annex the planets if I could; I often think of that. It makes me sad to see them so clear and yet so far."*²¹⁷

This stresses the very idea of development and perpetual expansion, with its foundations in the spirit of successful business development, which can, on the other hand, when taken to the extreme, infringe ethical standards and that potentially could lead to impacting the whole of humanity.²¹⁸ In this context, it is essential to also address environmental issues arising from possible commercial activities in space, i.e. space debris. Space debris is defined as "all man-made objects, including fragments and elements thereof, in the Earth's orbit or re-entering the atmosphere, that are non-functional"²¹⁹ and pose a great risk for the sustainable use of outer space.²²⁰

As mentioned, nowadays not only organisations whose main preoccupation is outer space discuss the possibilities which might arise within this field in future, e.g. the Competitive Enterprise Institute (hereafter CEI)²²¹, an NGO organisation the main aim of which is entrepreneurship and free market initiatives. CEI in April 2012 published a paper 'Homesteading the Final Frontier – A Practical Proposal for Securing Property Rights in Space' (by Rand Simberg)²²².

This proposal was also presented at a press conference on Capitol Hill on the 5th April 2012. This paper presented a practical proposal for implementing a new regime. The author argues that space property rights are more than just a necessity for space development. Recognition by governments, especially the U.S. government in particular, of property rights in space would create a powerful financial incentive for opening-up the space frontier. Moreover, he argues that free market competition would also decrease the high costs of outer space-affiliated activities and that one of the reasons for such an international regime is that in the 1950s (time when international space treaties were in the process of forming) socialism was ascendant.²²³ At that time, outer space was not viewed as a potential frontier for human development and settlement, but predominantly as a potential battlefield in the Cold War between the USA and USSR.²²⁴

Furthermore, the proposal elaborates that the 1967 OST implicitly prohibits private property in outer space, but on the other hand there are different conceivable interpretations. One of them only prohibits declarations of national sovereignty and not those from private entities. Therefore, the USA and its allies could recognise land claims without either renegotiation or withdrawing from the treaty.²²⁵ Also the latter option seems justifiable to the author of this paper and since he even presents a few predictions as to whether this would actually happen, although he admits this would not

²¹⁷ *Ibid.* 4 qtd. Cecil John Rhodes, Last will and testament (1902), quoted in Carl Sagan, Contact (New York: Pocket Books, 1985) p. 157.

²¹⁸ *Ibid.* 4, p. 3.

²¹⁹ Mey H. J., Space debris remediation, 2012, p. 251.

²²⁰ *Ibid.*

²²¹ *Ibid.* 72.

²²² *Ibid.* 73.

²²³ *Ibid.* 73, p. 3.

²²⁴ *Ibid.*

²²⁵ *Ibid.* 73, p. 5.

be “politically practicable”.²²⁶ In addition, he admits that renegotiating the treaty “would reopen a can of worms thought sealed decades ago, and most diplomats would be loath to do so on something viewed as so speculative as Moon mining.”²²⁷

In his paper he goes on even further and makes presumptions as to how terrestrial settlements could become intrinsically sovereign and not subject to the laws of any sovereign country on earth and that the local laws would be defined by the corporate board of the claim owner.²²⁸

Although, the proposal offers an interesting new approach to the commercialisation of outer space and presents outer space as a new unlimited venue for human activity and commerce, the proposal is not based on firm theoretical underpinnings.

Article 2 of the OST contains what is the most important support for the principle of international space law that precludes the ownership of celestial bodies. It reaffirms the interpretation of the doctrine of *res communis* by stating that outer space “is not subject to national appropriation by claim of sovereignty...” Consequently, it creates a barrier to the realisation of space exploration by restricting explorers regarding any kind of ownership of their conquests.²²⁹ Article 2 also creates the most controversial loophole in the treaty, which was also elaborated on by the proposal of CEI regarding its failure to mention whether prohibition on ownership would extend to private individuals and business entities.²³⁰ Many private companies and individuals, whose home countries are not signatories of the Moon Treaty, use this deficiency to assert their belief that the concept of *res nullius* remains valid for private individuals and business entities. However, even if one country would make a decision to use this interpretation, another problem would arise and that is protecting the claim from others, which could lead to major political repercussions.²³¹ Furthermore, this “loophole” is mentioned also in Article 6, which stipulates that launching countries are required to ensure that their citizens conduct their activities in accordance with the provisions of the OST.²³²

Concerning the non-appropriation and exclusion of private ownership claims with regard to the Moon and other celestial bodies, it is necessary to also present the first precedential judgements. Firstly, the ruling of the Chinese court in the case of Beijing Moon Village vs. the Beijing.²³³ Company named Lunar Embassy²³⁴ famous for selling extra-terrestrial estates. This company has established many local branches and also nominated ambassadors around the world. A local branch was also opened in China in 2005. Soon afterwards, the Beijing industrial and commercial authorities suspended the license of Lunar Embassy in China for having engaged in “speculation, fraud and profiteering”²³⁵ and imposed a fine. The company appealed against the decision of the court and in 2007 Beijing First Intermediate People’s Court ruled against the company, stating, *inter alia*, that no individual or country could claim the ownership of the

²²⁶ *Ibid.* 73, p. 9.

²²⁷ *Ibid.* 73, p. 10.

²²⁸ *Ibid.* 73, p.11.

²²⁹ *Ibid.* 149, p.4.

²³⁰ *Ibid.*

²³¹ Brittingham C. B., Does the world really need new space law?, 2010, p. 44.

²³² Dunstan to Remark at CEI's Property Rights in Space Event, <http://techfreedom.org/publications/dunstan-remark-ceis-property-rights-space-event>. (last visited 14.6.2013).

²³³ Beijing Moon Village v Beijing, Hai Xing Chu Zi, No. 00087 (2006).

²³⁴ Lunar Embassy, <http://www.lunarempty.com/>. (last visited 14.6.2013).

²³⁵ Zhu L, Beijing Moon Village v Beijing, Judicial review of administrative decision, Hai Xing Chu Zi, No. 00087 (2006), 2008.

Moon.²³⁶ The Court argued its' decision by stating that China had been a party to OST since 1983, which prohibits the appropriation of outer space and its parts. This case was the first case for a Chinese court to directly apply an international treaty on the law of outer space.²³⁷

Another interesting case took place in the USA where a USA citizen Mr. Nemitz sued NASA and the US State Department based upon a claim over the asteroid 433 Eros.²³⁸ In 2003 he registered his claim with the private entity the Archimedes Institute. When NASA landed a spacecraft on Eros, Mr. Nemitz send an invoice to NASA for parking and storage fees, which was then rejected both at NASA and also at the Department of State by referring to the definition of OST, but not to the OST itself. Mr. Nemitz filed a lawsuit arguing that the USA had taken his property rights without just compensation, but nevertheless failed. The court made a judgement that he failed to prove that he had the basis for compensation, since he never had any property rights.²³⁹ Consequently, the Moon and other celestial bodies really cannot be appropriated by countries and private entities, and all claims have to be rejected, due to the lack of foundation under existing space law.

In the long-term, changes to the current regime are inevitable and this might probably happen when the first settlements on the Moon are established ("safety zones"), the missions of which will be exploring the Moon for the benefit and in the interest of all countries (i.e. according to the stipulation of the OST). Furthermore, it is expected, that analogous changes will be endorsed by the international community following the regime of deep seabed mining (or vice-versa).²⁴⁰

5.3 EXPLOITATION OF OUTER SPACE FOR MILITARY PURPOSES

Initially, the world community urged that space should only be used for peaceful purposes and for the benefit of mankind. This is also reflected in OST, which in Article 4 prohibits weapons testing, the stationing of weapons of mass destruction (including nuclear weapons), the holding of military manoeuvres, and also the establishment of military bases in space. In this regard it is important to consider the fact that, despite the claims of the US and USSR at that time, that space should serve only for peaceful purposes, both countries were already developing and launching satellites with military objectives. The fact is also that early space programmes were intended for military considerations and less for civil or scientific ones.²⁴¹

The reasons for such actions also lack precise definitions, which have resulted in a variety of interpretations. E.g. the relevant space treaties never precisely defined "peaceful". Consequently, some nations interpret "peaceful" as non-aggressive, whereas others as non-military.²⁴² Therefore, it is impossible to say for certain whether weapons are already in space. Once science fiction, now it could soon become a reality. Nevertheless, the international community and most of all the UN and UNCOPUOS have to intervene and prevent any space arms race.²⁴³

²³⁶ *Ibid.* 126, p. 209.

²³⁷ *Ibid.* 235.

²³⁸ Nemitz vs. United States, CV-N-03-0599-HDM-(RAM) (D. Nev. Apr. 27, 2004).

²³⁹ *Ibid.* 126, p. 210.

²⁴⁰ *Ibid.* 232.

²⁴¹ *Ibid.* 13, p. 8.

²⁴² *Ibid.*

²⁴³ Jakhu R., Legal Issues relating to Global public interest in outer space, 2005, p.62.

As a result, the exploitation of outer space has all along been driven by forces from two directions – one in the efforts toward the Prevention of an arms race in outer space (hereafter PAROS) and the other secretly in favour of outer space militarisation. PAROSs intent was to serve as a response to the fact that there is no multilateral agreement that would ban the deployment in outer space of weapons other than weapons of mass destruction in outer space, but it was functional only for one year after being established in 1994.²⁴⁴

Nowadays, the majority of space objects launched in space have a dual purpose. On the one hand they carry-out civilian (i.e. commercial activities), on the other also military activities. Outer space is mainly used for GNSS, which had soon been identified as a potential benefit of outer space.²⁴⁵ The satellite industry is the largest sector of commercial space activities today. Orbiting satellites, for example, facilitate communication between distant points on Earth. On top of that, satellites have become “the eyes, ears, and nerves of today’s military forces”²⁴⁶. This is true to such a degree that if the satellites of a space power were to be destroyed, its military capability would be reduced dramatically.²⁴⁷

The importance of satellites for military operations in battle was for the first time indisputably demonstrated during the Gulf War in 1991, e.g. operation Desert Fox and all future military operations, which can be directly linked to on-orbit assets. Furthermore, space capabilities have become an integral part of warfare to provide weather, warnings, navigation, communication, and intelligence information.²⁴⁸

However, OST bans weapons of mass destruction (i.e. nuclear, chemical, biological weapons) and Partial test ban treaty prohibits countries from using outer space for nuclear explosions.²⁴⁹ More elaborate on this topic is the Moon Agreement in Article 3 “Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the Moon in order to commit any such act or to engage in any such threat in relation to the Earth, the Moon, spacecraft, and the personnel of spacecraft or man-made space objects.”²⁵⁰ In addition, the Comprehensive Nuclear Test-Ban Treaty extends on the Partial Test Ban Treaty²⁵¹ by an effort to prevent nuclear proliferation and establishes a far-reaching verification regime that includes a global network of sophisticated monitoring systems, as well as on-site inspection of tests to deter and detect violations, which would be carried out by The Comprehensive Nuclear-Test-Ban Treaty Organization. Due to the non-ratification of a few countries, the treaty has not yet entered into force.²⁵²

When considering the strategic importance of the matter, there are theories observing that space law, including the Partial Test Ban Treaty, Outer Space Treaty, Treaty on

²⁴⁴ Daxue W., Security in outer space: do not duplicate historical mistakes, 2008, p. 14.

²⁴⁵ *Ibid.* 1, p. 389.

²⁴⁶ *Ibid.* 19, p. 6.

²⁴⁷ *Ibid.*

²⁴⁸ *Ibid.* 243, p. 59.

²⁴⁹ Blunt P. J., Limits on space weapons – incorporation the law of war into the *Corpus iuris spatialis*, 2009, p.8.

²⁵⁰ see *supra* Subchapter 3.6.

²⁵¹ Adopted by the GA UN Doc. A/50/1027 on 10 September 1996 and opened for signatures.

²⁵² *Ibid.* 165.

the Limitation of Anti-Ballistic Missile Systems (hereafter ABM Treaty)²⁵³, and the Moon Agreement, was developed to “permit, indeed to endorse, the arms race, including the militarisation of space”.²⁵⁴ This brings us to the *de facto* regime of *divide et impera*, where space-competent countries will have a crucial advantage over others. Since many of those space-competent countries interpret “peaceful” as non-aggressive another question appears *Quis custodiet ipsos custodes?* The best answer for this might be the name of the article presented at the 2008 UNIDIR conference presented by Wang Daxue, “Do not duplicate historical mistakes”.²⁵⁵

²⁵³ Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty), entered into force on 3 October 1972.

²⁵⁴ Maogoto J., Freeland S., Space weaponization and the UN charter regime on force: A thick legal fog or a receding mist?, 2010, p. 16.

²⁵⁵ *Ibid.* 244.

6. CONCLUSION

International space law is one of the fields of international law that will be at the centre of attention in a matter of a few decades. I can argue this solely by visiting NASA's webpage where they publish the latest news and discoveries and you can see how much is going on and that almost every day there is a new discovery – e.g. In 2012 another big step in human exploration of space occurred. The robotic rover Curiosity safely landed on Mars on the 6th August, with the mission of investigating the Martian climate, geology, whether Mars has supported life at anytime in history and the most important being whether that would be possible in the future.²⁵⁶

Inter alia, this will also bring immense changes to the whole structure of space law, since there are some deficiencies and *lacuna lege* that will eventually have to be addressed and overcome. The concept of exploiting of outer space is tangled with so many different factors, such as scientific discoveries and technological advancement, international relations, private entities etc. so that at some point space lawyers would wish that they could use Occam's razor in order to simplify things. In addition to this, space lawyers live in a dichotomy between law and natural sciences.

In regard to this aspect, my first hypothesis that the legal regime of *de lege lata* in outer space is obsolete and inappropriate, especially in the light of the growing number of scientific discoveries and rapid technical development over the last few decades has been proved and thoroughly elaborated on. It might seem exaggerated to describe the current regime as "inappropriate" since the current situation can be best described as "The law is not perfect, but it is there."²⁵⁷ Notwithstanding, improvements seem inevitable in order to foster development.

My second hypothesis or question elaborated in this thesis was whether the opportunities for smaller (i.e. less prominent in regarding outer space) countries, e.g. Slovenia, to become involved in the exploration and commercialisation of outer space are comparable to traditional "space-faring" nations. There is no straightforward answer to this question when considering the struggles of many international organisations, and the number of different factors that apply.

We know that there are several countries that were annihilated during the colonisation era. Little by little, science and technology has enabled the former and nowadays colonial empires to expand their *modus operandi* to outer space. As mentioned before, it will be of the utmost importance to prevent this from happening by applying an appropriate legal regime for outer space.

In order to find it, every country will have to contribute to finding a solution that would enable having as equal possibilities as possible. In my opinion this will only be possible if smaller countries collaborate and cooperate within different organisations, and thus remain competitive.

Nevertheless, those responsible should always have in mind that "the exploration and use of outer space ... shall be for peaceful purposes and shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development. ... The prevention of an arms race in outer space would avert a

²⁵⁶ Foto in video: "Radovednost" bo v Marsovo atmosfero prežgala stokilometrsko luknjo, RtvSlo.si, 1 August 2012.

²⁵⁷ *Ibid.* 1, p. ix.

great danger for international peace and security”²⁵⁸ and that small-mindedness could have grievous effects on our futures.

Even so, the question is how could any future colonisation and exploitation of outer space have an influence on the current economic situation and the crisis we are facing at the moment? Countries around the globe invest huge sums into space research - related activities. The legitimacy of this is questionable as it might be better to focus more on the current problems that affect mankind, e.g. the on-going economic crisis, finding a cure for diseases etc.²⁵⁹

Furthermore, proliferation towards new scientific discoveries and successful explorative missions will have to go in line with the level of civilisation. Capturing space without implying ethical considerations could lead to significant problems.²⁶⁰ Consequently, this underlines the need for careful consideration of all available information beforehand so that living and working in space would be beneficial for all concerned. When we accomplish this, “we will find the heavens inviting us in as treasured and most welcomed guests, and perhaps over time, we will have earned the right to call the heavens our home”.²⁶¹

In order to achieve this, people will have to climb out of the Platon’s cave and learn from history so the same mistakes would not happen again – *Historia magistra vitae est* – “history is life’s teacher, the study of the past should serve as a lesson for the future”. *Inter alia*, this especially applies to previous considerations about Cecil Rhondes (see *supra* Subchapter 5.2).

Of special importance is the general awareness of people, so they know that various opportunities also exist outside our own planet. This was the reason why there are many countries nowadays where universities offer courses and study programmes in international space law (e.g. LL.M. Advanced Studies in Air and Space Law, Leiden University²⁶²).

Moreover, education is also important for teaching ourselves and future generations about ethical considerations that apply in outer space. Possibly the next generation will be the first to establish permanent settlements outside this planet.²⁶³

They should be capable of making responsible decisions when it comes to the colonisation of space and also spread positive changes and influences both in economy and society. They will have the possibility of changing the very context in which we imagine space commerce.²⁶⁴ We should keep in mind that we are responsible for our own fate and at this point I would like to present a rhetorical question posed by Anthony de Mello in his book ‘Awareness’ (1990) – “*What’s the earthly use of putting a man on the moon when we cannot live on the earth?*”

²⁵⁸ Prevention of an arms race in outer space, UN GA Resolution, A/RES/55/32, January 2001.

²⁵⁹ Lov na hitrostne rekorde in polžji tek k zdravilu za ebolo, RtvSlo.si, 18 August 2012.

²⁶⁰ *Ibid.* 4, p. 8.

²⁶¹ *Ibid.* 4, p. 9.

²⁶² LL.M. Advanced Studies in Air and Space Law, University Leiden, <http://www.law.leiden.edu/prospectivestudents/lilm-programmes/lilm-programmes.html>. (last visited 14.6.2013).

²⁶³ Znanstveniki: Življenje mogoče na večjem delu Marsa, RtvSlo.si, 12 December 2011.

²⁶⁴ *Ibid.* 4, p. 8.

7. REFERENCES

7.1 MONOGRAPHIES

1. CHRISTOL, Q. C. The modern international law of outer space. Pergamon Press Inc., Los Angeles, California, 1982.
2. COHEN, A. M. Law and politics in space: specific and urgent problems in the law of outer space. Leicester University Press, London, 1964.
3. CSABAIFI, A. I. The concept of state jurisdiction in international space law. Martinus Nijhoff, 1971.
4. DIEDERIKS-VERSCHOOR, I. H. Ph. An introduction to space law. Kluwer Law International, Haag, 1999.
5. GIBSON, M. J., POWELL, J. AU Space Primer. Air command and Staff College. Air university press, Maxwell air force base, Alabama, 2009.
6. GOH, M. G. Dispute settlement in international space law – A multi-door courtgouse for outer space. Martinus Nijhoff Publishers, Leiden, 2007.
7. JASENTULIYANA, N. International space law and the United nations. Kluwer Law International, Vienna, 1999.
8. KERŠIČ L. Druga generacija vesoljskega prava. Master Dissertation at University of Ljubljana, 2011.
9. KISH, J. The law of international spaces. Sijthoff Leiden, Cambridge, 1973.
10. KOŠENINA U. Novosti v mednarodnopravni ureditvi nadzračnega prostora. Diploma work at University of Ljubljana, 2005.
11. LACHS, M. The law of outer space – An experience in contemporary law-making. Sijthoff Leiden, Hague, 1972.
12. LEE, R. Creating a practical legal framework for the commercial exploitation of mineral resources. Doctoral Thesis at Murdoch University, 4 December 2009.
13. LYALL, F., LARSEN, P. B. Space law: a Treatise. Ashgate, Farnham, Burlington, 2009.
14. OGUNBANWO, O. O. International law and outer space activities. Martinus Nijhoff, Leiden, 1975.
15. POTOČNIK, N. H. The problem of space travel – The rocket motor, The NASA History Series, Washington D.C., 1929 (1995).
16. RUWANTISSA, I. R. A. The frontiers of aerospace law. Ashgate, London, 2002.
17. TRONCHETTI, F., The exploitation of natural resources of the Moon and other celestial bodies – A proposal for a legal regime. Martinus Nijhoff Publishers, Leiden, 2009.

7.2 ARTICLES

1. BEEBE, B. Law's empire and the final frontier: legalising the future in the early Corpus Iuris Spatialis. *Yale Law Journal*. 1999, vol. 108, p.1737-1772.
2. BLUNT, P. J. Limits on space weapons – incorporation the law of war into the Corpus Iuris Spatialis. *Proceedings of the 51st Colloquium on the Law of Outer Space*. 2009, p. 1-9.
3. HEARSEY, M. C. A review of challenges to Corporate expansion into outer space - Conference & Exposition. *American Institute of Aeronautics and Astronautics*. 2008, p.1-18.
4. JAKHU, R. Legal Issues relatin to Global public interest in outer space. *Journal of space law* 32. 2005, no.1, p. 3-69.

5. KEEFE, H. Making the final frontier feasible: a critical look at the current body of outer space law. *Santa Clara computer & high tech law journal*. 1995, nr. 11, p. 345-371.
6. LEE, R. Reconciling international space law with the commercial realities of the 21. century. *Singapore Journal of International & Comparative Law*. 2000, nr. 4, p. 194-250.
7. LISTNER, J. M. International space law: An overview of law and issues. *New Hampshire Bar Journal*. Spring 2011, p. 62-71.
8. LISTNER, J. M. The ownership and exploitation of outer space: A look at foundational law and future legal challenges to current claims. *Regent Journal of Int. Law*. 2003, no. 75-76, p. 1-34.
9. LIVINGSTON, M. D. The ethnical commercialisation of outer space. *Mars Society*, 14 August 1999, p. 1-11.
10. MAOGOTO, J., FREELAND, S. Space weaponization and the UN charter regime on force: A thick legal fog or a receding mist?. *International Lawyer*. 2010, 41 (4), p. 1-41.
11. MEY, H. J. Space debris remediation. *German Journal of air and space law*. 2012, vol. 61, issue 2, p. 251-272.
12. MOMOH, W. An overview of Nigerian Space Activity and space law. *African skies/cieux Africains*. October 2008, no. 12, p. 104-108.
13. POCAR, F. An introduction to the PCA's optional rules for arbitration of disputes relating to outer space activities. *Jurnal of space law*. 2012, volume 38, p. 171-185.
14. VERESHCHETIN, S. V. The law of outer space in the general legal field (commonality and particularities). *Revista Brasileira de Direito Aeronáutico e Espacial*. April 2010, p. 42-49.
15. ZHU, L. *Beijing Moon Village v Beijing*, Judicial review of administrative decision, *Hai Xing Chu Zi*, No. 00087 (2006). *ILDC Oxford Reports on international law*, ILDC 846 (CN 2006), 2008, p. 1-3.

7.3 CONFERENCE REPORTS

1. DAXUE, W. Security in outer space: do not duplicate historical mistakes. IN: *UNIDIR Conference Report*, 2008, 13-19.
2. GRAHAM, T. The law and the military use of outer space. IN: *UNIDIR Conference Report*, 2004, 87-97.
3. WOLFF, M. J. 'Peaceful uses' of outer space has permitted its militarization—does it also mean its weaponization?.IN: *UNIDIR Conference report*, 2003, 6-13.

7.4 TREATIES AND DOCUMENTS

1. ANTI-BALLISTIC Missile Treaty - Treaty on the Limitation of Anti-Ballistic Missile Systems, entered into force on 3rd October 1972.
2. CONVENTION for the Establishing of a European Organisation for the Development and Construction of Space Vehicle Launchers, 29 March 1962, entered into force 29 February 1964, 507 UNTS 177; (1964), UKTS 30, Cmnd. 2391; 1964 ATS 6.
3. CONVENTION for the Establishment of a European Space Agency, 1297 UNTS 161, 187.
4. CONVENTION for the Establishment of a European Space Research Organisation, entered into force, 14 June 1962, entered into force 20 March 1964, 528 UNTS 33; (1964) UKTS 56, Cmnd. 2489.

5. CONVENTION on the high seas, entered into force on 30th September 1962.
6. CONVENTION on the Territorial Sea and the Contiguous Zone, entered into force 1964.
7. DRAFT version of The Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets, adopted by a diplomatic Conference, Berlin, March 2012.
8. FRAMEWORK agreement between the European Community and the European Space Agency, entered into force 28 May 2004.
9. LIABILITY convention - Adopted by the General Assembly in its resolution 2777 (XXVI) of 29th November 1971. Convention was opened for signature on 1972, and entered into force in September 1972.
10. MOON Agreement - Adopted by the General Assembly in its resolution 34/68 of 5th December 1979. Agreement was opened for signature in 1979, and entered into force on 11th July 1984.
11. OUTER Space Treaty - Adopted by the General Assembly in its resolution 2222 (XXI) of 19th December 1966. Treaty was opened for signature in the US, UK and USSR on January 27 1967, and entered into force on October 10, 1967.
12. PARTIAL test ban treaty of 1963 - Opened for signature on 5th August 1963, 480 U.N.T.S. 43; 14 U.S.T. 1313; entered into force 10th October 1963.
13. PCA Optional Rules for the Arbitration of Disputes Relating to Outer Space Activities, adopted by the Administrative Council of the PCA on 6 December 2011.
14. REGISTRATION convention - Adopted by the General Assembly in its resolutions 3235 (XXIX) of 12 November 1974. Convention entered into force on 15th September 1976.
15. RESCUE Agreement – Adopted by the General Assembly in its resolution 2345 (XXII) of 19th December 1967. Agreement was opened for signature on 22 April 1968, and entered into force on 3rd December 1968.
16. STATUTE of ICJ, adopted on 14 April 1978 and entered into force on 1 July 1978.
17. ANTARCTIC treaty, entered into force in 1961.
18. CONVENTION on International Civil Aviation, Chicago, entered into force on 5th March 1947.
19. PRINCIPLES Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting', Adopted by the General Assembly in its resolution 37/92 of 10th December 1982.
20. 55TH SESSION of UNCOPUOS, UN document A/67/20, 2012.
21. PREVENTION of an arms race in outer space, UN GA Resolution, A/RES/55/32, January 2001.
22. DECLARATION on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, A/RES/51/122, 13th December 1996.
23. DECLARATION of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, Res. 1962 (XVIII) of 13 December 1963.
24. PRINCIPLES Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, Res. 37/92 of 10 December 1982.
25. PRINCIPLES Relating to Remote Sensing of the Earth from Outer Space, Res. 41/65 of 3rd December 1986.
26. PRINCIPLES Relevant to the Use of Nuclear Power Sources in Outer Space, Res. 47/68 of 14th December 1992.
27. DECLARATION on space benefits - Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, Res. 51/122 of 13 December 1996.
28. SPACE Millenium: Vienna Declaration on space and Human Development, General Assembly resolution 2222 (XXI).

29. LEGALITY of the Threat or Use by a State of Nuclear Weapons in Armed Conflict, Advisory Opinion, 8 July 1996.
30. UN GA Res. 1472 (XIV) of 12 December 1959.
31. UN-SPIDER, UN GA 61/110 of 14 December 2006.
32. RESOLUTION on the European space policy, adopted 22 May 2007, ESA/C/CXCI/Res.1.
33. UNOOSA, General Assembly Resolution 1348 (XIII) of 13 December 1958.

7.5 INTERNATIONAL TREATIES CONCERNING REPUBLIC OF SLOVENIA

1. AGREEMENT between the Republic of Slovenia and the European Space Agency concerning space cooperation for peaceful purposes, Official Gazette No. 9/2009.
2. EUROPEAN Cooperating State Agreement between the Republic of Slovenia and the ESA, signed 22 January 2010, Official Gazette No. 46/2010.
3. KONVENCIJA o mednarodni odškodninski obveznosti za škodo, ki jo povzročijo vesoljska vozila, Official Gazette SFRJ-MP, nr. 9/1977.
4. POGODBA o prepovedi poskusov z jedrskim orožjem v atmosferi, v nadzračnem prostoru in pod vodo, Official Gazette SFRJ-MP, nr. 11/1963.
5. SPORAZUM o reševanju astronavtov, vračanja astronavtov in vračanju predmetov, izstreljenih v vesolje, Official Gazette SFRJ-MP, nr. 21/1971.

7.6 CASE LAW

1. BEIJING Moon Village v Beijing, Judicial review of administrative decision, Hai Xing Chu Zi, No. 00087 (2006).
2. NORTH Sea Continental Shelf Cases, 1969 ICJ Rep. Judgement.
3. NEMITZ vs. United States, CV-N-03-0599-HDM-(RAM) (D. Nev. Apr. 27, 2004).

7.7 INTERNET AND WEB- BASED RESOURCES

1. BRITTINGHAM, C. B. Does the world really need new space law?. January 2010.
2. COMPETITIVE Enterprise Institute. <http://cei.org/>. 14.6.2013.
3. DUNSTAN to Remark at CEI's Property Rights in Space Event..<http://techfreedom.org/publications/dunstan-remark-ceis-property-rights-space-event>. (last visited 14.6.2013).
4. ESA. ESA and the EU. http://www.esa.int/About_Us/Welcome_to_ESA/ESA_and_the_EU2. 14.6.2013.
5. ESA. European cooperating states. http://www.esa.int/About_Us/Welcome_to_ESA/European_Cooperating_States. 14.6.2013.
6. ESA. History of Europe in Space. http://www.esa.int/About_Us/Welcome_to_ESA/ESA_history/History_of_Europe_in_space_. 14.6.2013.
7. ESA. New member states. http://www.esa.int/About_Us/Welcome_to_ESA/New_Member_States. 14.6.2013.
8. ESA. Welcome at ESA. http://www.esa.int/About_Us/Welcome_to_ESA. 14.6.2013.
9. ESA. What is ESA?. http://www.esa.int/About_Us/Welcome_to_ESA/What_is_ESA. 14.6.2013.

http://works.bepress.com/bryon_brittingham/1.

10. IAF. International Astronautical Federation. <http://www.iafastro.com/>. 14.6.2013.
11. IASLA. International Air and Space Law Association. <http://www.spacemoot.org/>. 14.6.2013.
12. IISL. International Institute of Space Law. <http://www.iislweb.org/>. 14.6.2013.
13. LUNAR Embassy. <http://www.lunarempty.com/>. 14.6.2013.
14. OOSA. Treaty signatures. <http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do>. 14.6.2013.
15. POTOČNIK Noordung Herman. The book. <http://noordung.vesolje.net/vsebina/book.htm>.
16. RTVSLO.SI. FOTO in video: "Radovednost" bo v Marsovo atmosfero prežgala stokilometrsko luknjo. <http://www.rtvslo.si/znanost-in-tehnologija/foto-in-video-radovednost-bo-v-marsovo-atmosfero-prezgala-stokilometrsko-luknjo/288616>. 1 August 2012.
17. RTVSLO.SI. Lov na hitrostne rekorde in polžji tek k zdravilu za ebolo. 18 August 2012, <http://www.rtvslo.si/svet/lov-na-hitrostne-rekorde-in-polzji-tek-k-zdravilu-za-ebolo/289668>. 14.6.2013.
18. SIMBERG, R. Homesteading the Final Frontier – A Practical Proposal for Securing Property Rights in Space. <http://cei.org/issue-analysis/homesteading-final-frontier>. April 2012.
19. SPACE – ESP background. http://ec.europa.eu/enterprise/policies/space/esp/background/index_en.htm. 14.6.2013.
20. STARCHILD. StarChild question of the month for August 2002. <http://starchild.gsfc.nasa.gov/docs/StarChild/questions/question48.html>, 14.6.2013.
21. TIRONE, J. Maldives' Disappearing Coast Prompts Appeal to UN Space Agency. Bloomberg.com. <Http://www.bloomberg.com/apps/news?pid=newsarchive&sid=algwfJbru5mA>. 5 June 2009.
22. UN. MEMBER states of the UN. <https://www.un.org/en/members/index.shtml>. 14.6.2013.
23. UN. UN at a glance. <https://www.un.org/en/aboutun/index.shtml>. 14.6.2013.
24. UNCOSA. Space Solutions for the World's Problems. <http://www.uncosa.unvienna.org/uncosa/en/index.html>. 14.6.2013.
25. UNCUPOUS. UNCOPOUS Members. <http://www.unoosa.org/oosa/COPUOS/members.html>. 14.6.2013.
26. UNOOSA. United Nations Office for Outer Space Affairs (UNOOSA). <http://www.oosa.unvienna.org/oosa/en/OOSA/index.html>. 14.6.2013.
27. UN-SPIDER. <http://www.un-spider.org/>. 14.6.2013.
28. VALIYEV, H. Azerbaijan improves legal framework for space cooperation. Trend.az, <http://en.trend.az/regions/scaucasus/azerbaijan/2149769.html>. 13 May 2013.
29. ZUROFF, E. The US record on Nazi war criminals. <http://www.guardian.co.uk/commentisfree/cifamerica/2010/nov/15/secondworldwar-international-criminal-justice>. 15 November 2010.
30. LEGAL dictionary. <http://legal-dictionary.thefreedictionary.com/negligence>. 14.6.2013.

7.8 OTHER

1. CAMBRIDGE Dictionaries Online, http://dictionary.cambridge.org/dictionary/british/exploit_1. 14.6.2013.
2. DE MELLO, A. Awareness. Image Books, New York, 1990.

3. KEPLER, J. *Astronomia nova* - New Astronomy 1609 *Harmonices Mundi* – eng. The Harmony of the World 1619.
4. LL.M. Advanced Studies in Air and Space Law, University Leiden, <http://www.law.leiden.edu/prospectivestudents/lhm-programmes/lhm-programmes.html>. 14.6.2013.
5. MERRIAM-WEBSTER dictionary, <http://www.merriam-webster.com/dictionary/exploit>. 14.6.2013.
6. NEWTON I. *Philosophiæ Naturalis Principia Mathematica* - eng. Mathematical Principles of Natural Philosophy, 1687.
7. OUTLAND. movie. Director: Peter Hyams, Writer: Peter Hyams, 1981.

8. APPENDICES

1. IASLA space law moot court - Republic of Cassini vs. Kingdom of Itokawa. 2012 Moot problem. <http://www.spacemoot.org/pdfs/2012problem.pdf>.



THE IASLA SPACE LAW MOOT COURT COMPETITION

INTERNATIONAL COURT OF JUSTICE

SPECIAL AGREEMENT

BETWEEN

REPUBLIC OF CASSINI
(APPLICANT)

AND

KINGDOM OF ITOKAWA
(RESPONDENT)

JOINTLY NOTIFIED TO THE COURT ON 3 SEPTEMBER 2055

COUR INTERNATIONALE DE JUSTICE

COMPROMIS

ENTRE

RÉPUBLIQUE DE CASSINI
(DEMANDEUR)

ET

ROYAUME DE ITOKAWA
(DÉFENDEUR)

NOTIFIÉ CONJOINTEMENT À LA COUR LE 3 SEPTEMBRE 2055

Case concerning Certain Actions of Human Settlements on Mars and Related Actions on Earth

Cassini v. Itokawa

STATEMENT OF AGREED FACTS

1. Cassini is an archipelagic State with a population of 42 million. It has one of the highest gross domestic product per capita in the world and is the world's fifth largest economy. It is technologically advanced with a highly-developed space capability in both the public and private sectors. It has one of the world's highest population density and has sought to increase arable and residential land through reclamation from the sea.
2. Itokawa is a large continental State with a population of 241 million. It is the world's largest economy and its high living standards, including free public healthcare, education and social services have given Itokawa one of the world's highest gross domestic happiness, an index developed and adopted by the United Nations Development Programme under the 2036 UNDP Action Programme. Although private enterprises dominate its space applications sector, the Itokawa Space Development Authority ("ISDA") has invested heavily in launch vehicles and both manned and unmanned space exploration programmes.
3. After the successful development of nuclear and ion propulsion engines enabled the first human landing on Mars in 2031, overpopulation, depleting resources and unchecked environmental degradation have fuelled increasing interest in human settlement on Mars. Since 2044, China, the European Mars Settlement Community (comprising the Member States of the European Union, Norway and Switzerland) and the United States of America have established permanent and semi-permanent human settlements on Mars with populations varying between 300 and 1,200 volunteer settlers.
4. Cassini and Itokawa, being neighbouring States have competed for mineral resources in the overlapping exclusive economic zones and the international waters between them. Since 2023, they have also competed heavily in the extraction and exploitation of lunar resources after the 2019 world shortage on platinum and other platinum group metals (caused by the increasing use of hydrogen-oxygen fuel cells, for which such metals are essential catalysts, in place of petroleum engines) and the adoption of the 2022 Provisional Lunar Resources Exploitation Agreement (the "**Lunar Resources Agreement**") under the auspices of the United Nations. Their navies and lunar mining establishments have clashed in protection of their respective economic interests over the years.
5. Article 46 of the Lunar Resources Agreement states that:

This Agreement is not intended to effect the arrangement contemplated in Article 11 of the Agreement on the Activities of States on the Moon and other Celestial Bodies and nothing in this Agreement is intended to affect the application or operation of the terms of that Agreement on its State Parties.

6. On 2 May 2048, being the Independence Day of Itokawa, the permanent settlement named Nova Itokawa was officially established on Mars in the Tharsis bulge, 30 kilometres south of the caldera of Olympus Mons. With a population of 1,450 mostly volunteers, Nova Itokawa is governed by the Nova Itokawa Ruling Council of 9 people elected by the Federal Cortés (parliament) of Itokawa for 5 year terms. The Nova Itokawa Ruling Council is assisted by a small administration that enabled Nova Itokawa to be effectively autonomous and self-governing in most respects.
7. On 19 September 2048, Cassini established Titania, its first permanent settlement on Mars in Tharsis bulge, 65 kilometres east of the caldera of Olympus Mons and about 200 kilometres from Nova Itokawa. With 1,866 volunteer settlers, Titania has the largest population of all human settlements on Mars but, like Nova Itokawa and all other Martian settlements, Titania is designed to be entirely self-sufficient in food, water, oxygen and resources. The governance and administrative affairs of Titania are handled by the Cassinian Department of Space Affairs, which is headed by the Minister for Space Affairs appointed by the President of Cassini.
8. On 9 April 2049, a serious malfunction occurred in the oxygen generation facility in the second United States settlement on Mars. Although the malfunction was quickly rectified, this mishap led to concerns being raised among the settlers and on Earth about the ability of the various Martian settlements to deal with severe emergencies. After intensive diplomatic negotiations, the General Assembly of the United Nations adopted the Convention on Emergency Evacuations of Martian Settlements (the **"Evacuation Convention"**).
9. Article I of the Evacuation Convention defines a "Settling State" as a State that "establishes or procures the establishment of a human settlement on Mars".
10. Article IV of the Evacuation Convention provides that:

Each Settling State must ensure that a human settlement on Mars maintains the requisite vehicles, equipment, fuel and procedures necessary for the emergency evacuation of all permanent and temporary inhabitants of that settlement within three hours of an emergency being declared.

11. Article VIII of the Evacuation Convention further provides that:

Nothing in this Convention affects any existing obligation of States in international law to render assistance to each other in the case of any emergency affecting human safety and welfare in all settlements on Mars.

12. Since establishment, both Titania and Nova Itokawa had been mining the area located between the two settlements in the Karzok Crater, east of the Olympus Mons caldera. It is believed that an asteroid impact and subsequent repeated meteorite strikes in the Karzok Crater has caused the area to be particularly rich in platinum, platinum group metals and water. Competition between the two settlements for the mineral wealth in the Karzok Crater has led to significant tensions between them and between Cassini and Itokawa. In particular, the media in Cassini and internationally have suggested that Nova Itokawa was mining more than was needed by the settlement to stockpile in anticipation of future shortages.
13. On 14 July 2052, in an exclusive report in *The New York Herald*, it was revealed that most of the minerals extracted and refined on Mars by Nova Itokawa were being secretly ferried back to Itokawa for domestic consumption on Earth in Itokawa. When the report was reprinted in the Cassinian press, the settlers in Titania were outraged.
14. Three weeks later, during three days of holidays in celebration of the coronation of the new Queen Mathilde III of Itokawa from 5 to 7 August 2052, the Titania settlers dug a large hole with steep edges in the Karzok Crater near an area recently mined by Nova Itokawa and covered it with a large brown plastic sheet. The bottom side of the plastic sheet was found to have the words "SURVIVAL IN SPACE BEFORE GREED ON EARTH". When mining activities resumed, a significant number of mining vehicles fell into the hole and had to be abandoned as they became irretrievable. Of the 36 settlers who were onboard the vehicles, only 14 were rescued as the remainder died on impact or before rescuers could reach them. Of the 14 survivors, 5 received permanent injuries.
15. The Cassinian Government denied all prior knowledge of the actions of the settlers in Titania, but admitted that an administrative officer in Titania had reported these actions afterwards in her weekly report to the Minister in Cassini.
16. The deaths and the loss of equipment, which had to be replaced from Itokawa at an estimated cost of 26 million Itokawan phobos (the Itokawan currency unit), led to fervent calls for retaliation in both Itokawa and Nova Itokawa. The Speaker of the Itokawan Cortés and the President of the Nova Itokawa Ruling Council both scheduled extraordinary sessions of both bodies in September 2052 to debate retaliatory measures against Cassini and Titania, respectively.
17. Despite emergency supplies of vehicles and certain mineral resources and water supplies being sent immediately from Itokawa, the loss of the vehicles and mining equipment placed the survival of Nova Itokawa at risk for six months due to the time needed for transit from the Earth to Mars.
18. On 3 September 2052, a large metallic meteorite from the meteor shower from the Comet Wiseman-Skiff (114P) entered the Martian atmosphere and struck the power generating plant of Titania, destroying all 12 nuclear reactors. Emergency evacuation alarms immediately sounded throughout Titania but it was soon discovered that there

were only 17 evacuation spacecraft maintained, enough for only half of the settler population of Titania. The settlers decided to evacuate the women and children to Cassini using the useable spacecraft and those that remained got into their vehicles and drove towards other settlements on Mars. Of that number, 248 of those with the least amount of electrical power in their vehicles, drove towards Nova Itokawa.

19. When news of the disaster in Titania spread throughout Mars, each of the other settlements except Nova Itokawa immediately decided to take in the refugees when they arrived from Titania and to arrange for their safe transport to Cassini. At Nova Itokawa, however, an urgently convened meeting of the Ruling Council could not decide and a settlement meeting was immediately called at the Settlement Square. The Nova Itokawan settlers voted by a 71.4% majority to refuse entry to the Titanian refugees just before the latter began to arrive.
20. Of the 248 Titanian refugees refused entry into Nova Itokawa, 87 reached other settlements or were rescued by teams sent out by the other settlements and 54 were secretly sheltered by sympathetic settlers in Nova Itokawa. The remaining 107 died from suffocation when their vehicles ran out of electrical power.
21. The death of the Titanian refugees turned away by Nova Itokawa was widely reported by the media on Earth and was met with a mixture of diplomatic silence or outspoken condemnation by the international community. The National Assembly of Cassini resolved on a retaliatory trade embargo on Itokawa and a resolution proposed by Cassini condemning Itokawa and imposing trade sanctions failed to be adopted by the General Assembly of the United Nations. Although public opinion in Itokawa was generally supportive of Nova Itokawa, the resulting shortages of coal and natural gas, which were mostly imported from Cassini, partly led to the landslide victory of the opposition parties in the federal election in Itokawa on 26 March 2053.
22. On 10 May 2053, 7 of the 9 members of the Nova Itokawa Ruling Council, whose term ended on 1 May 2053, and their families departed Nova Itokawa for Itokawa onboard the spacecraft *Pisces XI*. On 26 November 2053, at an altitude of 186 kilometres above the surface of the Earth, *Pisces XI* collided with a previously identified object that severely damaged its navigational systems. *Pisces XI* made a successful emergency landing on a military installation in Cassini but when the identity of the passengers onboard became known, the President of Cassini ordered the arrest of the Ruling Council members. On 21 December 2053, the crew and other passengers, as well as *Pisces XI* were released by the Cassinian authorities and returned to Itokawa.
23. Despite strenuous protests and demands for their immediate release by Itokawa, the Nova Itokawa Ruling Council members were charged with mass murder and crimes against humanity. On 23 October 2054, in a trial most international observers considered to be fair and impartial, they were found guilty by the Supreme Criminal Court of Cassini and sentenced to death.

24. The convicted members of the Nova Itokawa Ruling Council were executed in Cassini on 19 May 2055. The method of execution was not disclosed.
25. After the executions, the Federal Government of Itokawa recalled its ambassador and broke off all diplomatic relations with Cassini. However, the Attorney-General of Cassini, bowing to public opinion, continued to press for monetary compensation for the deaths of the Titanian refugees from Itokawa through diplomatic channels, including the United Nations.
26. Through the good offices of the Secretary-General of the United Nations and the shuttle diplomacy of the Foreign Minister of China and the U.S. Secretary of State, both Cassini and Itokawa agreed to jointly submit their dispute in relation to the actions of Titania and Nova Itokawa and subsequent related actions by Cassini to the International Court of Justice.
27. Cassini claims that:
 - (i) Itokawa contravened international law in extracting mineral resources from Mars for domestic exploitation and use on Earth;
 - (ii) Itokawa contravened international law by failing to admit the Titanian refugees into Nova Itokawa and to otherwise render them all necessary assistance; and
 - (iii) Itokawa is liable to compensation to Cassini for its breaches of international law as pleaded above.
28. Itokawa claims that:
 - (i) Cassini is liable for the injuries, deaths and destruction of vehicles and mining equipment on Mars and placing the survival of Nova Itokawa and its settlers at serious risk;
 - (ii) Cassini contravened international law in failing to ensure that sufficient spacecraft is maintained in Titania for the evacuation of all of its settlers; and
 - (iii) Cassini was obliged to return to Itokawa the members of the Nova Itokawa Ruling Council that landed in Cassini and is liable for their deaths.
29. Each of both Cassini and Itokawa deny the claims made by the other and further deny that the other is entitled to any relief from the Court.
30. Both Cassini and Itokawa are Member States of the United Nations and are State Parties to the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Moon Agreement, the Lunar Resources Agreement and the Evacuation Agreement. Neither State are State Parties to the Vienna Convention on the Law of Treaties or the Registration Convention.